

MANUFACTURERS RECORD

A Weekly Newspaper Devoted to the Industrial, Financial, Railroad,
Mining, Contracting, Engineering, Building, and General
Business Interests of the South and Southwest

Vol. 61
No. 26

U.S. OFF. PUB. REG.

ESTABLISHED 1882

\$4.00 Per Year
Single Copy 15 Cents

JUL - 5 1912

A Declaration of Interdependence.

When, in the course of human events, it becomes necessary for the South to strengthen the bands which connect it with other parts of the country, a decent respect to the opinions of mankind requires that it should declare again why the development of the South means the enrichment of the nation.

We hold these truths to be self-evident, that a section blessed with the natural resources for industry and trade must be the main reliance for the healthy life of other sections lacking such resources, and that in the union centering in that section of the capital of mind, muscle, money and material resources of the country is the hope of National advancement. To prove the strength of the South for such a union let facts be submitted to a candid world.

The South has 400,000,000 acres of lands suitable for farming, of which less than 200,000,000 are now cultivated.

The South has 500,000,000 tons of coal to be mined, more than 10,000,000,000 tons of iron ore, and unmeasured quantities of petroleum, natural gas, sulphur, lead, zinc and other minerals.

The South has 258,000,000 acres of timber land.

The South has 17,000 miles of navigable streams and a coastline of 3000 miles on ocean and gulf marked off by more than 30 ports handling more than \$900,000,000 of foreign commerce annually. The South has 89,000 miles of railways.

The South's population of 33,000,000 is producing annually in agriculture, mining, manufacturing and fisheries to the value of nearly \$8,000,000,000. It is equipped in natural resources for a production three times as great as that, and with more to follow.

For the union of all sections in a sharing of the mutual advantages to be derived from interdependence in Southern development the MANUFACTURERS RECORD renews its pledge of thirty years ago by which it has abided in season and out of season.

Alphabetical Index, Page 150.
Classified Index, Pages 144 to 149.
Classified Opportunities, Pages 96 and 97.

BALTIMORE, JULY 4, 1912

CLINCHFIELD COAL

CLEAN



LUMPY



"NEVER SHORT OF CARS"

MINED BY
Clinchfield Coal Corporation
DANTE, VA.

SOLD BY
Clinchfield Fuel Company
SPARTANBURG, S. C.

York Safe & Lock Co.

BANK AND SAFE DEPOSIT
VAULTS

SAFES

FIRE AND BURGLAR PROOF

YORK, PA. BALTIMORE, MD.

"Walls"

Everlasting **Oilers**

Our
Specialties

Include Oil Cans,
Fillers, Torches, Hand
Lamps, Ice Cans, Bells,
Gongs, Belt Fasteners, etc.
These goods are warranted of
the greatest possible durability,
and the best obtainable quality.

of Brazen Steel, specially designed
for Strength. Every joint brazed
with Hard Spelter. Red Heat
or the roughest usage will
not cause a leak.

Ask for Catalogue.

The P. Wall Mfg. Co.
Allegheny, Pa.




**Reduce Production
Costs of Your Sheet
Metal Goods**

Bliss presses include every feature that tends
for economical production.

Realize all the profits that's coming to you from
your sheet metal manufacturing by installing
Bliss Presses.

Look over your work, send samples, stating
requirements. We are always ready to quote
prices or give information to suit your require-
ments.

"Bliss Presses for Every Requirement."

E. W. BLISS CO., 4 Adams Street,
Brooklyn, N. Y.
Reps. for Chicago and Vicinity: Stiles-Morse Co., 562
Washington Blvd., Chicago, Ill.

"Bliss" No. 20 Press,
does four operations
every stroke.

PERFORATED METALS

FOR ALL USES

You will find our prices and goods "RIGHT"

Send complete specifications.
Send for Metal sample plate **Erdle Perforating Co., Rochester, N. Y.**



SYRACUSE
Ash or Coal Barrows

Strong, well balanced, convenient;
tubular steel frame; extra heavy
steel wheel; legs provided with
renewable steel shoes.

THREE SIZES
No. 52, 6 cubic feet, No. 54, 8 cubic feet;
No. 55, 10 cubic feet.

SYRACUSE CHILLED PLOW CO.
SYRACUSE, N. Y.

Y

S

igned
ized
lent
will



OWS

nt;
avy
ith

feet;

W CO.





GRINNELL AUTOMATIC SPRINKLERS

Would Have Prevented
This Fire and Saved
\$200,000 Loss



What is said to have been the finest railroad station in Kansas was burned a few weeks ago. Not only was the structure a complete loss, but all records in the general offices of the company on the upper floors were destroyed.

If automatic sprinklers had been installed in this building, they would have operated immediately when the heat of the fire made itself felt, and put out the small fire which finally resulted in a big blaze. The sprinkler, which has come to be considered the most perfect fire fighter in existence, pours its water upon the heart of the fire while it is still so small as to be easily subdued. In this way, by putting out small fires, it *prevents* big ones.

The installation of a system of automatic sprinklers in this building would have reduced insurance premiums to such an extent as to have paid for the equipment in about five years. After this period the reduction would have formed a permanent dividend of about 20 percent on the cost of the installation.

We have just published *Automatic Fire Protection*, which shows just how such a system is laid out—how the heat of the fire turns on the water and the fire is thus made to commit suicide.

Send for your copy today, before it slips your mind.

General Fire Extinguisher Co.

Executive Offices: PROVIDENCE, R. I.

Southern Department: ATLANTA, GA.; CHARLOTTE, N. C.

We also install Steam
and Hot Water Heat-
ing and Power Pip-
ing Systems.



Plants, Warehouses,
and Offices in Prin-
cipal Cities of United
States and Canada.

FOSTORIA

SOUTHERN
STOCKS



QUICK
DELIVERIES

CARBON

Standard Mill Type All Specials

DRAWN WIRE MAZDA 100-125 Volts

Regular Type 25, 40, 60, 100, 150, 250 Watts.
Round Bulb 25, 40, 60, 400, 500 Watts.

200-250 Volts

Regular Type 40, 60, 100, 150, 250 Watts.
Round Bulb 40, 60, 500 Watts.

FLASHLIGHT, MINIATURE, SIGN AND STREET SERIES

GEM ALL TANTALUM TYPES

We have a special proposition for Cotton Mills and
other industrial plants. Get it. Your plant is
not modern without modern illumination.

THE FOSTORIA INCANDESCENT LAMP WORKS

OF GENERAL ELECTRIC CO.

Home Office and Works, Fostoria, Ohio
Southern Office, 73 South Pryor Street, Atlanta, Georgia

SOUTHERN AGENCIES

Nashville Machine Co., Nashville, Tenn. Perry-Mann Elec. Co., Columbia, S. C.
Shores-Osborne Elec. Co., Spartanburg, S. C. W. M. Reay, Norfolk, Virginia.
H. M. Moses Elec. Co., Knoxville, Tenn. Summers-Parrott Hdw. Co., Johnson City, Tenn.
Ingram-Graham Elec. Co., Jacksonville, Fla. Watt Hardware Co., Thomasville, Ga., and Branches.
Norton Hdw. Co., Norton, Va. Fitzhugh-Perkins Co., Dallas, Texas.
Deshon & Davison, Tulsa, Okla.



Prominent Contractors
Everywhere Endorse

NEW AURORA DUMP WAGONS

Contractors that know, that have used other makes, insist on the New Model Aurora Dump Wagons.

There are many reasons. They are built right. Short coupled. Low to ground. Light in weight, but exceptionally strong. Easily operated. They afford a big saving "on the job."

Let us send you the names of some users and catalog showing just why you need Aurora Dump Wagons.

WRITE US TODAY

WESTERN WHEELED SCRAPER CO.

AURORA, ILLINOIS

EARTH AND STONE HANDLING MACHINERY

> FLINT-RIM <

The most economical Sprocket Wheels on the market

Last several times as long as ordinary cast iron wheels and cost but little more.

Are accurately fitted to the original "Ewart" chains of which we are the designers and makers.



Life of Chain prolonged because wheels are not rapidly wearing away from the proper pitch diameter.

Write for Book 108.

The economy resulting from the use of these wheels appeals to all who appreciate durability and satisfactory service, and especially to those who wear out machinery rapidly.

LINK-BELT COMPANY

PHILADELPHIA

CHICAGO

INDIANAPOLIS

NEW YORK, 299 Broadway
BOSTON, 131 State St.
BUFFALO, 601 Ellicott Square

PITTSBURGH, 1501-3 Park Building
ST. LOUIS, Central Nat. Bank Building
SEATTLE, 118 King St.

DENVER, Lindrooth, Shubart & Co.
SAN FRANCISCO, The Eby Machinery Co.
NEW ORLEANS, Wilmot Machinery Co.

LUFKIN

Measuring Tapes

In Accuracy, Durability and Workmanship are Unequalled.

"With Instantaneous Readings."

THE LUFKIN RULE CO.

NEW YORK

LONDON, ENG.

SAGINAW, MICH., U. S. A.

WINDSOR, ONT.



CALDWELL

Elevating, Conveying and Power-Transmitting Machinery

For Cotton Seed Oil Mills, Compresses and Gins, Canning and Packing Plants, Clay Working, Sand and Gravel Plants, Phosphate and Fertilizer Plants.

Concrete and Cement Plants, Ice and Cold Storage Plants, Breweries and Distilleries, Grain Elevators and Manufacturing Industries generally.

Labor saving devices for mechanically handling raw or finished material in packages or bulk.



Send for Catalog No. 34

H. W. CALDWELL & SON CO.
CHICAGO, 17th St. and Western Ave.
NEW YORK, 50 Church St.

SPECIALTIES FOR POWER HOUSE LUBRICATION

TURBOIL

TRADE MARK

FOR

TURBINE LUBRICATION



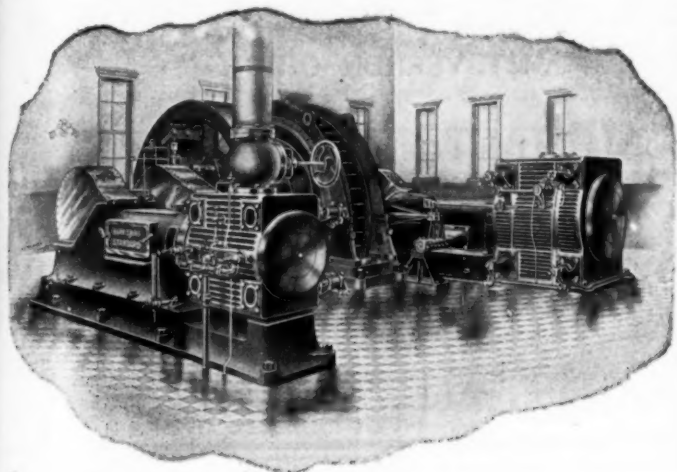
GAS CYLINDER OIL

TRADE MARK

FOR HIGH-DUTY GAS ENGINES USING
NATURAL, PRODUCER OR FURNACE GAS
GET THE ORIGINAL AND SUCCESSFUL BRAND

NEVER FAILED

BORNE, SCRYMSER COMPANY
80 SOUTH STREET, NEW YORK



Fleming Harrisburg Engines

points are appreciated by

Single and Corliss Valve

Have established an enviable record. EXCELLENCE OF DESIGN, CAREFUL SELECTION OF MATERIALS, and PAINSTAKING ACCURACY OF CONSTRUCTION produce in them LONG LIFE, ECONOMICAL and UNIFORMLY REGULAR OPERATION. They are the logical result of THIRTY-THREE YEARS of successful engine building experience. These CAREFUL INVESTORS.

Simple and Compound

Manufactured by

Harrisburg Foundry & Machine Works

Harrisburg, Pa., U. S. A.

BALTIMORE OFFICE
Continental Building

ATLANTA OFFICE,
Third Nat'l Bk. Bldg.

NEW ORLEANS OFFICE
Hennen Building



Down in Houston—

at the plant of the Houston Light & Power Co. there's a 300 g. p. m. Terry Turbine driven boiler feed pump—one of the many Terrys in the South. It has like all

Terry Turbines

given entire satisfaction. It has been in continuous operation for twelve months.

Reliability is a strong feature of Terry Turbines. Won't you let us know your requirements for driving pumps, generators and blowers? There's a Terry which will do the work.

"Terry Service" is a short story of Terry Turbines. Send for it.

The Terry Steam Turbine Co.

Birmingham	McClary-Jemison Mach. Co.
Memphis	Allen Engineering Co.
Charlotte N. C.	J. S. Cothran
New Orleans and Houston, A. M.	Lockett & Co., Ltd.

Home Office and Works
Hartford, Conn.

Agencies in All Principal Cities

General Sales Office
90 West St., New York
(32-91)

TWO CYLINDER OPPOSED

Dependable for

STATIONARY OR PORTABLE WORK

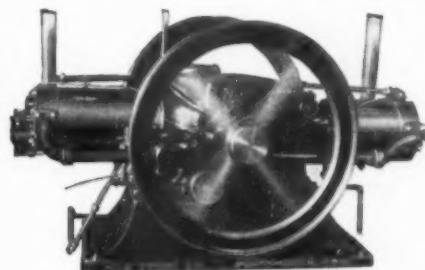
Gas, Gasoline or Oil

Costs dollars less than steam to buy and operate

10-16-25-40 H. P.

Perfect **HEER** Balance

Write Now for Catalogue

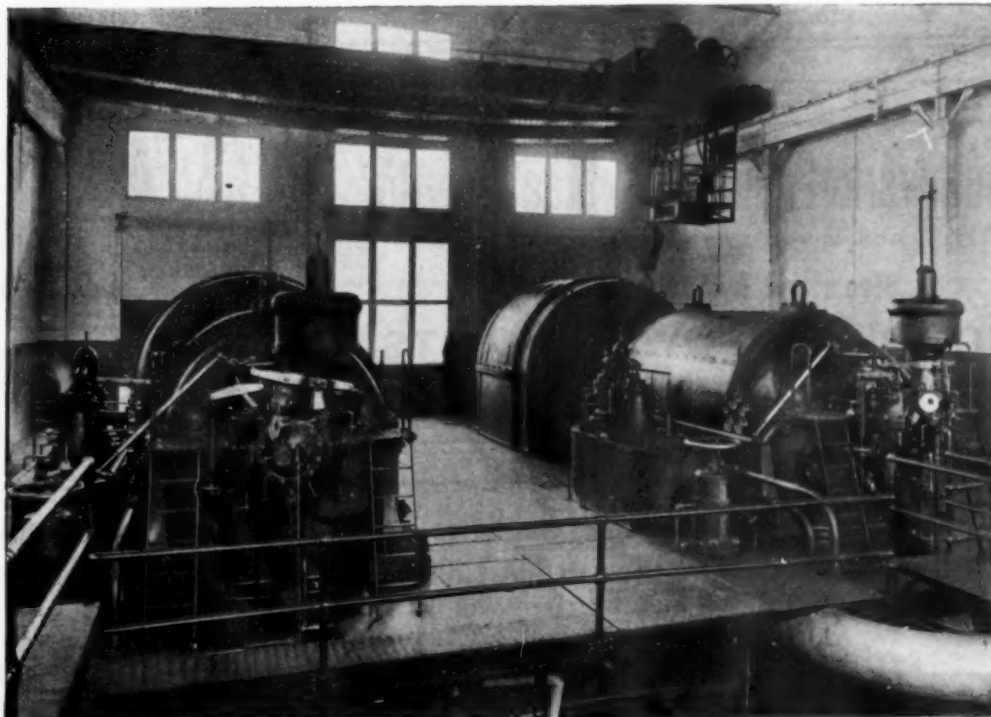


THE HEER ENGINE CO. Portsmouth, O., U. S. A.

ALL the authentic steam turbine economy records, American and European, were recently tabulated. This table was presented at the May meeting of the American Society of Mechanical Engineers, and may be found in the published "Proceedings."

THE FIRST SIX machines in point of efficiency, are of the Reaction, or combined Impulse-Reaction type, upon which we base our designs.

Write for literature.



The Westinghouse Machine Company

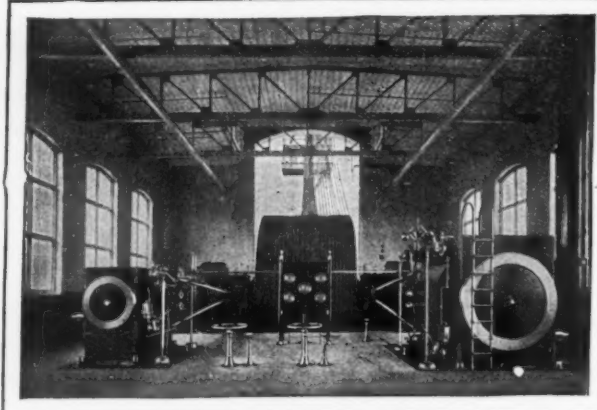
Steam Turbines, Steam Engines, Gas Engines, Gas Producers, Mechanical Stokers and Condensers

New York, 165 Broadway.
Boston, 131 State Street.
Atlanta, Candler Bldg.
St. Louis, Chemical Bldg.

Pittsburgh, Westinghouse Bldg.
Cleveland, Sweetland Bldg.
Chicago, 39 So. La Salle St.
Cincinnati, Traction Bldg.

Philadelphia, N. American Bldg.
Denver, 1062 Gas & Electric Bldg.
San Francisco, Hunt, Mirk & Co.

Mexico: Compania Ingeniera, Importadora y Contratista, S. A. (Successors to G. & O. Braniff & Co.), City of Mexico.



The C. & G. Cooper Company

MT. VERNON, OHIO.

ENGINE BUILDERS

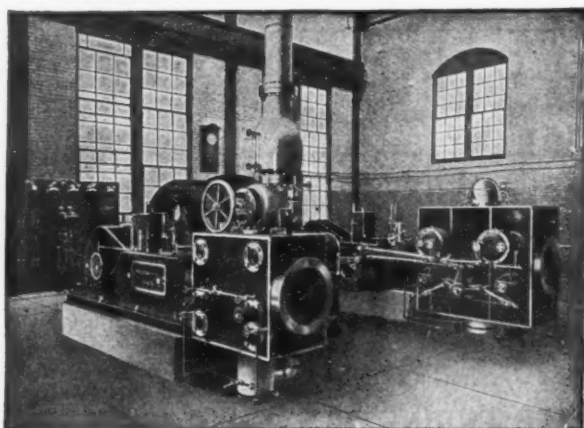
WE ALSO FURNISH

COMPLETE STEAM PLANTS

ATLANTA, 560 Candler Annex
CHARLOTTE, Courthouse Square
NEW YORK, 1419 Bowling Green Building
CHICAGO BRANCH, 1539

BOSTON, 201 Devonshire St.
PHILADELPHIA, Drexel Building
PITTSBURGH, 604 Frick Building
First National Bank Building.

Ball Engines for Electric Service



BALL ENGINE COMPANY

ERIE, PA.

SOUTHERN REPRESENTATIVES:

Mech. Electric Co., 1111 Mutual Bldg.,
Richmond, Va.
International Steam Engineering Co.,
Grant Bldg., Atlanta, Ga.
George Bailey, Mercantile Library Bldg., Cincinnati, Ohio

Smith & Whitney, Dallas, Texas
P. B. Baumes, 520 Victoria Bldg.,
St. Louis, Mo.

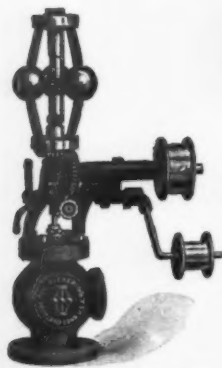
Southwark Foundry & Machine Co.

PHILADELPHIA, PA.

Steam and Hydraulic Engineers

COMPLETE POWER PLANTS

ENGINES—TURBINES—CONDENSERS



For Steam Engines, Turbines,
Gas Engines and Mechan-
ical Control.

PICKERING

"THE GOVERNOR WITHOUT JOINTS"

Directness of Action Gives
Greater Efficiency Maximum Durability

BECAUSE—

Absence of joints not only insures closer regulation when installed, but equal efficiency under continued duty, for lost motion cannot result with absence of joints. Stability in Action and Durability in continued duty effects economy, whether Electric Light Service, Saw Milling, or Dredging and Ditching.

WIDE RANGE SPEED CHANGER
AUTOMATIC SAFETY STOP

The PICKERING OVERNOR COMPANY
PORTLAND, CONNECTICUT, U. S. A.



Schofield Engines and Boilers

We make a specialty of RETURN TUBULAR BOILERS and ENGINES. They are particularly adapted for Saw Mills, Oil Mills, Cotton Ginning.

For Immediate Shipment, Portable Boilers and Engines, which are built for heavy duty. If you are contemplating the purchase of new Boilers and Engines, it will pay you to write us.

We are manufacturers of Boilers, Engines, Towers, Tanks, Standpipes, Self-supporting Steel Stacks, Plate and Sheet Iron Work, Saw Mills, etc.

WRITE US TODAY FOR ILLUSTRATED CATALOG

J. S. SCHOFIELD'S SONS CO., Macon, Ga.

BRANCH OFFICE: 307 W. Trade Street, Charlotte, N. C.

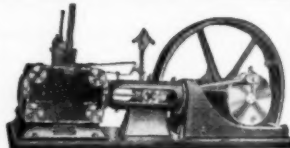
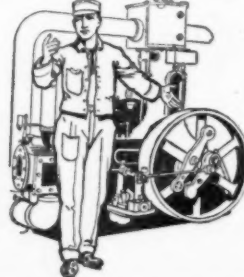
The American-Ball Angle Compound American Engine Company

BOUND BROOK, N. J.

Southern Representatives:

A. St. C. Dunstan, Auburn, Ala.
E. V. Dunstan, 204 Southern Bldg.,
Washington, D. C.

Write for booklet "The Modern Automatic High Speed Engine"



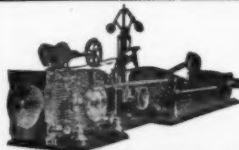
CORLISS ENGINES

Boilers of all Styles and Sizes
THE MURRAY IRON WORKS CO.
INCORPORATED FEB. 1, 1870
BURLINGTON, IOWA
Engine on exhibition in the Bourse, Philadelphia, Pa.

LITHOGRAPHED SIGNS

Plain, Embossed and Flanged
SOUTHERN CAN CO.

BALTIMORE, MD.



The Griffith & Wedge Co.

Established 1840

ZANESVILLE, OHIO, U. S. A.

Manufacturers of

The Ohio Corliss Engine

Send for Catalogue.

THE PRIMM OIL ENGINE

OPERATES ON
Crude, Fuel, Gas or Solar Oils, Distillate,
Kerosene or
Gasoline.

Two cycle type.
Steady as a clock.
Perfectly dependable
for any purpose.
There is absolutely no
carbonizing in the
cylinders.
Write for catalog and
name of nearest re-
presentative.



The Power Mfg. Co.

Cor. Greenlawn Ave. and C. & E. R.
LIMA, OHIO

That for week—Our engines run.

Services for which Storage Battery Cars are adapted

Large manufacturing plants often require an industrial railroad for the handling of materials about their yards and buildings. It is also frequently the case that a manufacturing plant is located some distance from a town and no means of transportation for employees is available. Large plantations and farms also require some method of handling produce and transporting employees.

For these and many other similar services storage

battery cars equipped with

"Nycap-Exide" Batteries

are well adapted. They require a minimum initial investment, can be operated at small cost and have ample mileage capacity.

Our nearest Sales Office will be glad to furnish full information on the cost of storage battery cars, either for passenger or for freight service. We have just issued a bulletin on this subject; a copy will be mailed you on request.

THE ELECTRIC STORAGE BATTERY CO.

1888

PHILADELPHIA, PA.

1912

ATLANTA SALES OFFICE, CANDLER BUILDING

New York Boston Chicago St. Louis Cleveland Toronto Denver Detroit Los Angeles Seattle San Francisco Portland, Ore.

Van Duzen Gasoline Engines and Jacks



1½, 2½, 4½, 6, 8, 12 H. P.

Send for our Catalogue. You will be Interested.
We have the Quality and the Price.

Van Duzen, Royce & Co., Columbus, Ohio

THE MIETZ & WEISS OIL ENGINES

Stationary 2 to 400 H. P. Marine 2 to 400 H. P. 150,000 H. P. in operation.

Operate on Kerosene, Cheap Fuel Oils, Crude Oil, Alcohol and Distillate, Etc.

Direct connected to Generators, Pumps, Hoists, Etc.

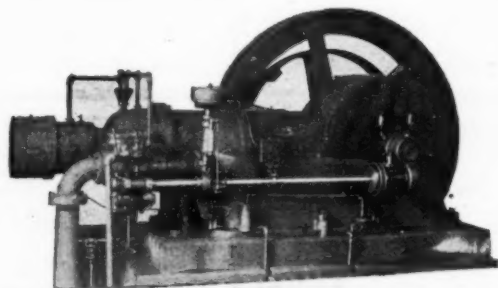
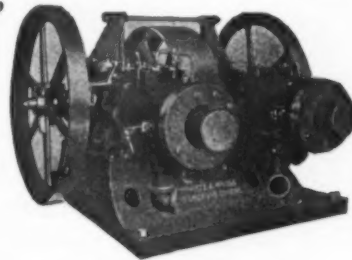
Thousands in use in all parts of the world.

Send for Catalogue.

A. MIETZ

129 MOTT STREET, NEW YORK

100 H. P. engine using three-cent-per-gallon fuel saves over gasoline at nine cents per gallon \$1800 per year, which represents a capital of \$36,000 at 5 per cent. interest. The same saving can also be had over a steam plant of the same capacity.



ECONOMICAL POWER CONTINUOUSLY with COVINGTON OIL ENGINES

Economical because they run on crude oil, costing 3c. per gallon, or 32 to 40c. for 100 H. P. per hour.

Continuously because they are built to run that way. Simple but massive in construction. No small or delicate parts to get out of order. All parts requiring attention are very accessible. Require little attention after starting.

They are quiet and smooth running; especially suitable for driving generators. Low pressure. Slow speeds. Will operate for years under full load.

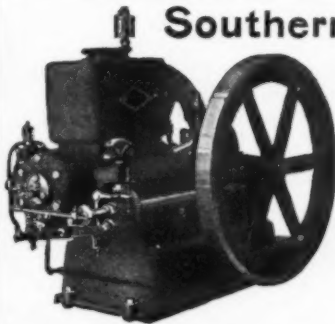
Built in sizes 50 to 300 H. P. Each and every engine thoroughly tested before leaving factory and guaranteed. Write for catalog.

COVINGTON MACHINE COMPANY

Main Office:
Covington, Va.

Sales Office:
88 Wall St., New York

Southern Gasoline Engines



We make an improved heavy duty gasoline engine of all sizes for all purposes.

Agency Contracts Still Open

Write for Catalogues and full information.

Southern Engine & Boiler Works

Manufacturers

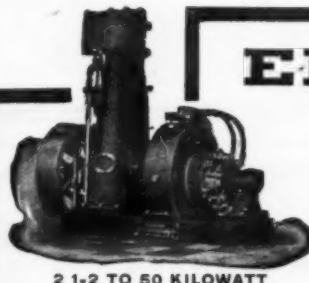
JACKSON, TENN.

For the
FACTORY
RESIDENCE
OFFICE BUILDING

Electrical Equipment, Wiring Supplies, Fixtures

Advise us of your requirements. Our prices interest.

PIEDMONT ELECTRIC CO., Electrical Bldg., Asheville, N. C.



2 1-2 TO 50 KILOWATT

ENGBERG

Generating Sets

Steam or Gasoline Engine Operated

SIMPLICITY, DURABILITY
and **SUCCESSFUL OPERATION** gives distinction to the **ENGBERG** Generating Sets.

The result of over fifteen years of most careful study and experience in Engine and Dynamo building.

Especially guaranteed as to **rating; stability and performance.**

Send for prices, descriptive bulletins, testimonial booklet and trial offer.

ENGBERG'S
ELECTRIC & MECHANICAL WORKS

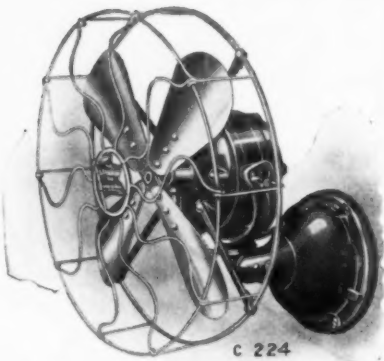
VINE STREET

ST. JOSEPH, MICH., U. S. A.

Raided by Buyers

How are you fixed for the big rush for "Standard" Fans the rest of this summer?

Are you able to supply the greatest demand yet? It's sometimes hard to get your stock replenished at a minutes's notice; so keep ready with a stock for the buyers who have read "Standard" ads. in the Saturday Evening Post.



**Robbins & Myers
STANDARD Fans**

(D. C. and A. C.)

"Standard" Fans are in greater demand than ever this year, owing to their past popularity and the tremendously compelling advertising being done.

THE ROBBINS & MYERS COMPANY
SPRINGFIELD, OHIO

BRANCHES: New York, Boston, St. Louis, Cleveland, Chicago, Philadelphia, Atlanta, Rochester, New Orleans, Pittsburgh

We also manufacture a complete line of D. C. and A. C. Motors for all purposes.

WM. H. NEVILLE

WM. M. ROBERTS

WM. H. NEVILLE & COMPANY
Electrical Contractors and Engineers
(Owners Gulfport Electric Co.)
NEW ORLEANS, LA.

WE HAVE MOVED
TO OUR NEW BUILDING
221-3 SOUTH SALISBURY STREET
RALEIGH, N. C.

AND AWAIT YOUR ORDERS
Electrical Engineering & Contracting Company

The Western Gas Construction Co.
FORT WAYNE, IND.

"Ionic" Lamp Posts

FOR ELECTRICITY OR GAS,
Write for Particulars.

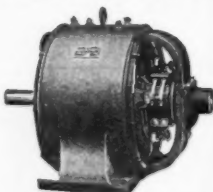
ECONOMY FOR MANUFACTURERS

Power just how, when and where you want it.

ADJUSTABLE SPEED MOTORS

The modern way of equipping your factory. Economy for you, and cleaner working conditions for your employees. Investigate now. Write for Bulletin 371M.

THE TRIUMPH ELECTRIC CO.
CINCINNATI, OHIO



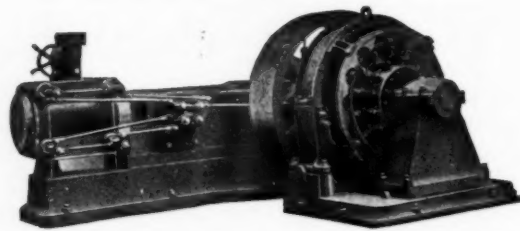
Incandescent Lamps

Unexcelled for Life, Brilliance or Uniformity

Motors and Dynamos

WRITE FOR PRICES

Kentucky Electrical Co., Inc., Owensboro, Ky.



Ridgway Units

have established a

High Standard of Efficiency
in the Isolated Plant and Central Station

REPEATED tests have shown that the Four-Valve type engine illustrated above will indicate a Horse-Power Hour with a lower consumption of steam than required by any other engine of similar type, and, in fact, lower than the best records of slow-speed, drop cut-off engines. Direct connected to Ridgway Generators, or arranged for belt drive, a Ridgway Four-Valve Engine is the cheapest prime mover to install; not quite the cheapest in first cost, but by far the cheapest in ultimate cost.

Send for Bulletins Z of the several types.

Ridgway Dynamo & Engine Co.
Ridgway, Pa.

Robbins & Myers STANDARD Motors

Direct Current 1-30 to 20 H. P., Alternating Current 1-30 to 1/4 H. P., Small Generators, Motor-Generators, Dynamotors, etc.

THE ROBBINS & MYERS COMPANY

SPRINGFIELD, OHIO, U. S. A.

Manufacturers

1 a burning hour 100 candle power 1
Pintsch Mantle Light

THE SAFETY CAR HEATING AND LIGHTING CO.
2 RECTOR ST., NEW YORK

HEADQUARTERS

FOR ALL THINGS ELECTRICAL

At a Little Less Than You Pay Elsewhere Prompt Service

EE ELECTRIC COMPANY
BALTIMORE, MD.

HARTLEY BOILER WORKS

BUILDERS OF

HIGH-GRADE

BOILERS

Stand Pipes, Self-Supporting Stacks, Tanks, Towers, all kinds of Structural and Plate Iron Work, Boiler Fronts, Grate Bars, Kiln Wheels, all kinds of Castings made to order.
MONTGOMERY, ALA.

Inspects boilers and fly wheels to guard against explosion.

Insures property against this hazard.

Also against Life and injuries to persons.

Makes specifications for new steam plants.

Inspection Bureaus at

BALTIMORE, MD.,
PHILADELPHIA, PA.,
ATLANTA, GA.,
NEW ORLEANS, LA.,

Hartford Steam Boiler



Inspection and Insurance Co.
Hartford, Ct.

Alters old ones in the interest of economy.

Maintains over 200 inspectors throughout the country.

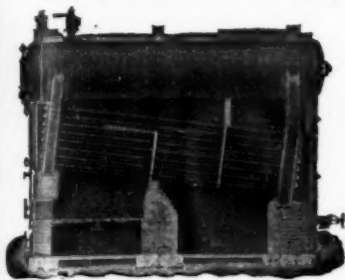
Over 100,000 steam boilers under supervision.

Assets Jan. 1, 1912,
\$5,045,874.60.

LAWFORD & McKIM, General Agents
W. M. FRANCIS, Chief Inspector
P. F. PESCU, General Agent

A Record of Twenty Years of Reliability GEARY WATER TUBE BOILERS

for 20 years have stood the test, and are offered to meet the demands of the most exacting engineering practice. Designed and built on correct and thoroughly proven principles to give the



maximum of safety, economy, durability and accessibility for cleaning and repairs. Units 30 to 650 horse power.

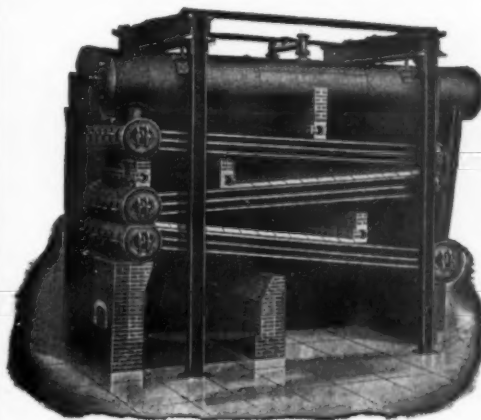
Send for illustrated booklet about "Geary" boilers.

Oil City Boiler Works

OIL CITY, PENNA.

New York Boston Pittsburgh Chicago Denver Salt Lake City

Chief Advantages of the VOGT WATER TUBE BOILER



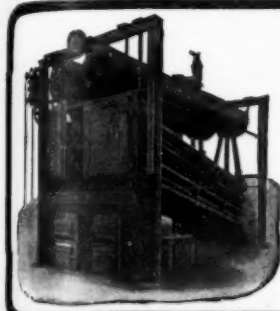
No flat stayed surfaces; no curved tubes; no multitude of hand hole plates; accessibility for cleaning and inspection; rapid circulation, both of water inside of tubes, as well as of the hot gases outside of tubes; complete combustion; dry steam; steadiness of Water Level; flexibility of construction; wrought steel construction throughout; safety, efficiency, durability.

Meets the demand for strictly safe, durable and efficient steam producer.

We want to answer your questions and also send our illustrated Catalogue.

Henry Vogt Machine Company

Louisville, Ky.



ROOT WATER TUBE BOILERS

Every essential to sustained high economy in steam generation is embodied in these boilers, making them of especial value under modern high-efficiency industrial methods. For 45 years the Root Boiler has been the only True Sectional Water Tube Boiler.

ABENDROTH & ROOT MFG. CO.

50 CHURCH ST., NEW YORK

Chicago, Commercial National Bank Bldg. Mexico, Mutual Bldg.

THE CASEY-HEDGES CO. Chattanooga, Tenn. Water Tube Marine Return Tubular **BOILERS**

SPECIAL PLATE AND TANK WORK

Offices—No. 719 Hennen Bldg., New Orleans, La.; Praetorian Bldg., Dallas, Texas.
Main Offices and Works—Chattanooga, Tenn.

BOILERS TANKS STACKS

Pumps, Heaters, Injectors, Engine Supplies, and repairs for Mills, Hotels, Public Works. Try
LOMBARD IRON WORKS, Augusta, Ga.

LOOKOUT BOILER & MFG. CO.

MANUFACTURERS OF
PORTABLE AND HORIZONTAL TUBULAR
BOILERS

STACKS, CASTINGS, TANKS, Etc.
CHATTANOOGA, TENNESSEE

THE WALSH & WEIDNER BOILER CO.

MANUFACTURERS OF HIGH-GRADE

BOILERS

CHATTANOOGA, TENN.

Write us for Prices before placing your order



KEELER CROSS DRUM TYPE

Designed for Restricted Spaces.

Shipped "Knocked Down."

All Wrought Steel Construction.

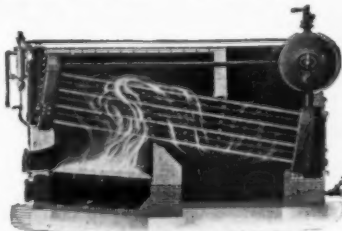
Installed in locations inaccessible for other types of boilers.

Ask for New Catalog.

Baltimore
Richmond

New York
Philadelphia
Pittsburgh

Charleston, W. Va.
Fort Worth



THE BABCOCK & WILCOX COMPANY

85 Liberty Street, NEW YORK

Babcock & Wilcox—Stirling—Rust

Water Tube Steam Boilers

STEAM SUPERHEATERS

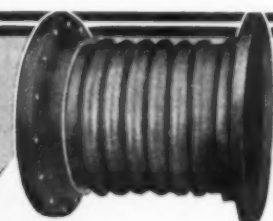
MECHANICAL STOKERS

WORKS—BAYONNE, N. J.

BARBERTON, OHIO

BRANCH OFFICES

Atlanta.....Candler Building	Denver.....435 Seventeenth St.	Pittsburgh..Farmers' Deposit Bank Building
Boston.....35 Federal St.	Havana, Cuba.....116½ Calle de la Habana	Portland, Ore.....Wells-Fargo Building
Chicago.....Marquette Building	Los Angeles.....American Bank Building	Salt Lake City.....313 Atlas Block
Cincinnati.....Traction Building	New Orleans.....Shubert Arcade	San Francisco.....59 First Street
Cleveland.....New England Building	Philadelphia.....North American Building	Seattle.....Mutual Life Building



Our patented joint which insures equal distribution of expansion on each corrugation.

Pipe Troubles Can Be Eliminated

by the use of

**Badger's
Copper Expansion
Joint**

Will take care of the expansion in lines of steam pipe. Will absorb vibration between engine and piping.

WRITE FOR FULL
PARTICULARS

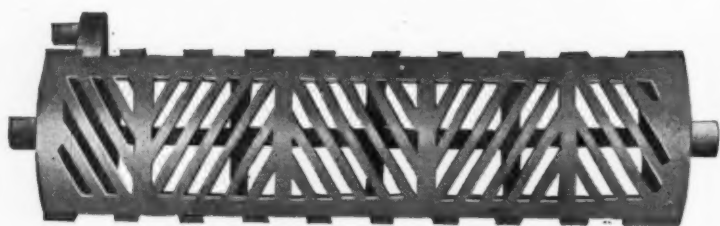
E. B. Badger & Sons Co.

63-75 Pitt Street Boston, Mass.

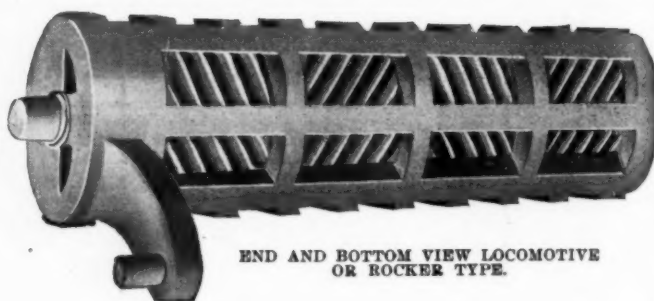
*Decrease Your
Fuel Bill*

*Increase Your
Steam Supply*

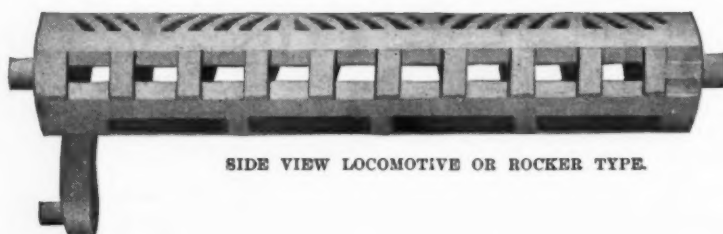
Install Thomas Elliptic GRATE BARS



TOP VIEW LOCOMOTIVE OR ROCKER TYPE



END AND BOTTOM VIEW LOCOMOTIVE
OR ROCKER TYPE



SIDE VIEW LOCOMOTIVE OR ROCKER TYPE



PERFORATED TYPE.



STRAIGHT-RIB TYPE.



END VIEW, GENERAL PLAN AND CROSS VIEW.

Thomas Elliptic Grate Bars can be used with any fuel and are self-cleaning. Made in different sizes. Guaranteed for 12 months.

Are made for use in saw mills, oil mills, ice plants, electric plants, fertilizer plants, mines, locomotives, steamboats, and wherever and whenever steam is needed.

Being circular have great strength. Having open spaces in the sides, keep lower part cool by a lateral draft, radiating heat from the connecting lugs and prevent crystallizing. Top surface being oval sheds ashes automatically, prevents slag clinkers, and gives clean fire always. Bottom surface being oval has great strength and holding power, and with draft spaces in sides protecting it from heat, gives it a long life.

Every power plant will be operated more economically by using them. We will gladly go into details with those interested.

Thomas Grate Bar Co.

Birmingham, Ala.
Branch: Valdosta, Ga.

LINDSTROM'S MACHINE WORKS

MANUFACTURER OF

CORLISS VALVE STEAM TRAPS.
STEAM SEPARATORS.
EXPERTS IN REBORING STEAM
ENGINE CYLINDERS, PUMPS AND
AIR COMPRESSORS.

TURN OFF AND CROWN ANY SIZE FLY-
WHEEL ON ENGINE SHAFT.

*Pig Barometer and Catalog Sent You
by Asking.*

200 SOUTH THIRD ST.
ALLENTOWN, PA.

FOSTER SUPERHEATERS

Applied to boilers of any type, old or new
Uniform Superheat
Guaranteed

111 Broadway, NEW YORK

A small defect
may cause an
explosion if not
repaired in time

**INSURE
YOUR
STEAM
BOILERS**

Such defects
can be found
only by a
thorough in-
spection

Maryland Casualty Co.
Baltimore and North Streets
BALTIMORE
Surplus and Reserves for Policyholders over
\$5,500,000.00

Our large corps
of inspectors are
men of long
experience and
ability

**AGENTS
EVERYWHERE**

Inspections
made regularly,
promptly and
thoroughly

F. E. King Company

MANUFACTURERS OF LOW SPEED, LOW POWER

DUST COLLECTING SYSTEMS

NORFOLK, VIRGINIA

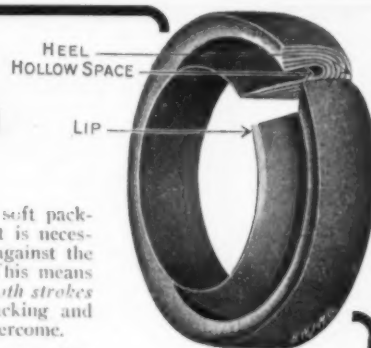
Sheet Steel Smoke-Stacks, Heating & Ventilating

The Green Fuel Economizer Co.

MATTEAWAN, N. Y.

Engineers: Builders of Green's Fuel Econ-
omizers, Fans, Blowers and Exhausters,
Steam Air Heater Coils, Waste Heat Air
Heaters, Mechanical Draft, Heating and
Ventilating and Drying Apparatus, Draft
Dampers and Engines.

How to Reduce Piston Rod Friction Over 75%



Every engineer knows that when soft pack-
ings are used in the stuffing box it is neces-
sary to have them pressed tightly against the
rod in order to prevent leakage. This means
friction on the rod at all times on both strokes
—a constant wear on both the packing and
the rod—and a constant load to overcome.

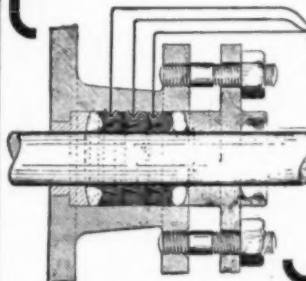
This rod friction can be reduced more than
75% with the use of J-M Sea Rings, because
they exert pressure on the rod only when there is pressure on them by the
steam or the contents of the cylinder on the return stroke. And the pres-
sure of J-M Sea Rings on the rod is always in exact proportion to the
pressure on them.

J-M SEA RINGS

therefore eliminate unnecessary wear on themselves and on the rod, and
effect a direct saving in fuel ordinarily required to overcome rod friction.

They are made of a laminated wedge of Asbestos, flax, or duck, turned
over on itself. Withstand highest pressures and are the ideal packing for
superheated or saturated steam, high pressure hydraulics, marine engines,
steam hammers, hot or cold water pumps, air compressors, etc.

Our "Blue Book" thoroughly explains and illustrates all the valuable
features of J-M Sea Rings. Tear out this paragraph, write your name and
address on the margin, and mail to our nearest Branch, and we'll send
you a copy.

J-M
SEA RINGS

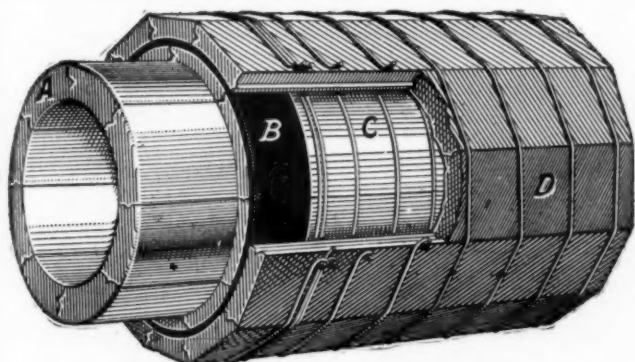
H. W. JOHNS- MANVILLE CO.

Albany
Baltimore
Boston
Buffalo
Chicago
Cincinnati
Cleveland
Dallas

Detroit
Indianapolis
Kansas City
Los Angeles
Louisville
Milwaukee
Minneapolis
New Orleans

New York
Omaha
Philadelphia
Pittsburgh
San Francisco
Seattle
St. Louis
Syracuse

1666



A—Inner Shell, 2 inches thick.
B—Asphaltum Packing.

C—Dead Air Space.
D—Outer Shell, 1 inch thick.

Cover Your Steam Pipes

WITH WYCKOFF'S IMPROVED

CYPRESS COVERING

Made of Gulf Cypress, the wood eternal

Not affected by wet and dry conditions common to
steampipe trenches. Will not rot. Lasts twice as
long as Pine Casing. Absolutely water and steam
tight. Each shell is wound with heavy galvanized wire.
Coated all over with the best known preservative—
Hydrolene B.

Let us answer your questions and tell you all about it.
Booklet on request.

A. WYCKOFF & SON COMPANY
Elmira, N. Y.



HE WAS DISGUSTED

with the subject of packing until he tried "GIBRALTAR"
Brand. Now his faith in mankind is restored—and this is why:

GIBRALTAR BLACK SHEET PACKING

will retain its elasticity and flexibility under
all climatic conditions.

- ☐ It is not affected by super-heated steam.
- ☐ It will positively resist the action of oils, acids, alkalies, am-
monia, etc.
- ☐ It will not burn or blow out under high steam pressure.
- ☐ It conforms readily to uneven surfaces and flanges.
- ☐ It can be successfully used on difficult steam joints WHEN ALL
OTHER PACKINGS FAIL.
- ☐ It is light in gravity, 1-16 inch weighing only about 5 pounds
per square yard.

Liberal Samples of Gibraltar Black Sheet Packing,
for Working Test, Sent on Request.

N. J. CAR SPRING & RUBBER CO.

ESTABLISHED 1869

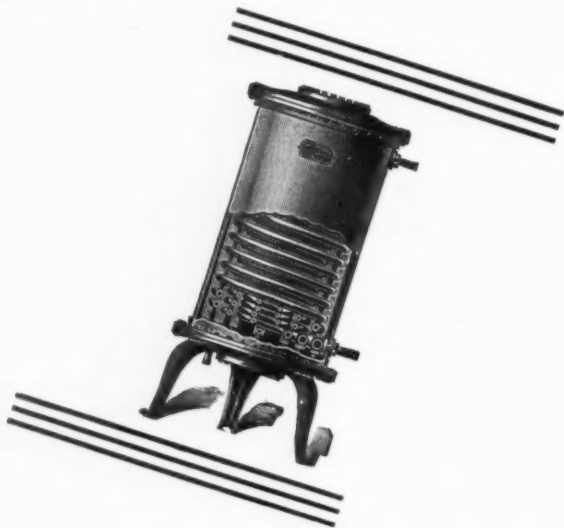
JERSEY CITY, N. J.

AGENTS IN ALL PRINCIPAL CITIES

There Is No Question Now About

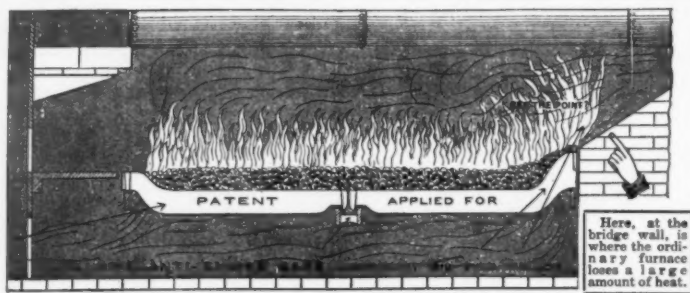
the advisability of a feed-water heater, but there is a question about which kind to use. Many today are glad they tried

A NATIONAL FEED-WATER HEATER



We would like to make you glad, too.
May we send one for trial?

The NATIONAL PIPE BENDING CO., 97 Lloyd Street New Haven, Conn.



Stop Smoke—Prevent Fuel Waste

The reason the smoke pours out of your chimney—the reason for the big fuel wastes—is that your furnace doesn't give the coal gases a chance to burn completely. The remedy for this ordinary furnace defect is in

MELLOR'S ANTI-SMOKE BARS

Being depressed, they increase the space between the flame and boiler, where the gases should mix. Then their shape is such that a plentiful supply of air is admitted at just the points where the gases should be burned. Instead of escaping up the stack, the carbon gives off its heat in the furnace.

That these Bars are a remarkable economy is more than theory—their use in many plants has demonstrated their practical value. Jessup and Moore Paper Co., Wilmington, Del., say:

The ten boilers equipped with your "ANTI-SMOKE" bars are giving us great satisfaction, they do all you claim, there is practically no smoke, they save coal and keep fires clean; the fuel does not clinker as upon the dumping and stationary grates we threw out to install yours.

West Jersey Paper Manufacturing Co., Camden, N. J., say:

We have used your grates under our six boilers for over a year; they are perfectly satisfactory, consuming all the smoke and gases, and this without the formation of clinkers. Your grates allow this to occur without any complicated arrangement, saving fuel and giving us a steady pressure of steam.

Write us and learn how readily you can apply these bars to your own furnace—and start saving fuel.

— READ THIS GUARANTEE —

If after 28 days' use the smoke nuisance isn't eliminated, the boiler capacity increased 15 to 20 per cent. and at least 12 per cent. of the fuel saved, we ask no payment for Mellor's Bars.

Mellor Furnace Engineering Co., 608 Chestnut St., Philadelphia, Penna.



The Otis Tubular Feed Water Heater

Oil Separator and Purifier

Is guaranteed to deliver the water to the boiler at boiling temperature (210 to 212 degrees). It will also extract the oil from the exhaust, so that the steam after passing through the heater may be used for other heating purposes and the condensed water returned to the boiler without any additional elimination.

Give the Otis a trial, and if you don't find it satisfactory we will pay the freight and carriage both ways.

The Stewart Heater Co., 3 Norfolk Ave. Buffalo, N. Y.



HOPPES STEAM SEPARATORS

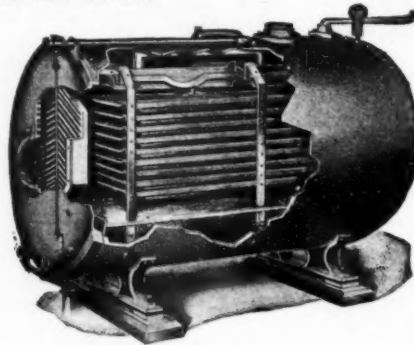


Will not only deliver 99% dry steam to your engine, but their large receiver capacity will take care of sudden flushes of water and afford ample steam storage for use during sudden "peak loads." All sizes and types to suit requirements.

HOPPES FEED-WATER HEATERS

Conserve the Fuel Pile—Protect Boilers
and Save the Dollars

The extra large heating and lime-catching surface, and the method of bringing the steam into direct contact with the water flowing in thin films, are the reasons why Hoppes Heaters give the highest efficiency and economy where others fail. Steel and Cast Iron Constructions. All sizes.



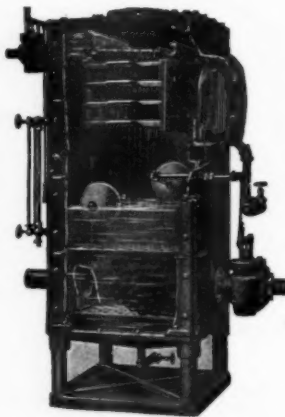
HEATER—CAST IRON CONSTRUCTION

Live Steam Feed-Water Purifiers—Oil Eliminators—Cast Iron
Exhaust Heads

ILLUSTRATED CATALOGS FREE

The Hoppes Mfg. Co.,

97 LARCH ST.
SPRINGFIELD, OHIO



FOR ECONOMY USE THE Blake-Knowles OPEN FEED WATER HEATER

It combines the functions of a Feed Water Heater, Oil Separator, Purifier, and Automatic Receiver.

Increased Boiler Efficiency and decreased Labor and Fuel Costs are the results of its use.

Fully described in
Bulletin B. K. 847-29

The Blake & Knowles STEAM PUMP Works

New York: 115 Broadway
Works: East Cambridge, Mass.

Branch Offices in all Large Cities

B150.2

A KENNEDY VALVE

FOR EVERY PURPOSE

and you can prevent annoyance and damage by letting us study your requirement and install the right kind.

Owners of Steam Power and Heating Plants, Sprinkler Equipments, Plumbing Installations, and Water Works, who use our valves are invariably satisfied.



Fig. 68.

Kennedy Valves are the result of many years' study and experience, and they're noted for simplicity and general efficiency.

Let us give you some users' names so you can investigate for yourself, and let us send you our valve catalogue.

THE KENNEDY VALVE MFG. CO.

SOUTHERN DEPARTMENT

Main Office and Works: 102 E. Water Street, Elmira, N. Y.

Branch Office and Warehouse, 47 Beekman St., N. Y.

Agencies: 606 Western Union Bldg., Chicago, Ill.

MAKERS OF VALVES AND FIRE HYDRANTS

Don't Pay Freight on Poor Fuel!

You pay the same freight on poor fuel as on good fuel. Consider the small difference in the cost of good fuel at the mines as compared with poor fuel, and pay freight only on good fuel. Consolidation Coal is a combination of heat and efficiency. Let us tell you what Consolidation Coals will do for you.

Georges Creek Big Vein Coal, Somerset Smokeless Coal, Fairmont Steam Gas Coal and Millers Creek Block Coal. Each with a distinct and tested heating value.

THE CONSOLIDATION COAL CO.

INCORPORATED

F. W. WILSHIRE, General Manager of Sales
BANKERS' TRUST BUILDING, 14 WALL STREET
NEW YORK, N. Y.

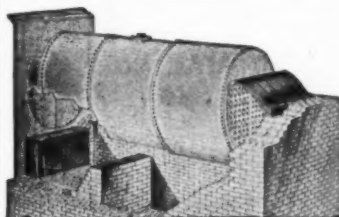
BRANCH OFFICES

Boston
Portsmouth
New Haven
London, England

New York
Philadelphia
Baltimore
Washington

Chicago
Cincinnati
Louisville
Detroit

Northwestern Fuel Co., Pioneer Press Bldg., St. Paul, Minn.



"TAYLOR MADE"

FIRE CLAY PRODUCTS

The life of our arches and jambs is several times that of cast iron liners. Send for descriptive matter.

The Chas. Taylor Sons Co.
CINCINNATI, OHIO

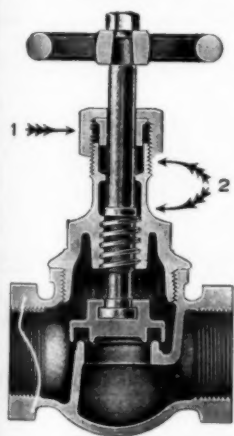
West Va. Fire Clay Mfg. Co.

FIRE BRICK AND CLAY

Fire Brick, Ladle Brick, Paving Brick, Building Brick, Cupola Blocks, Paving Block, Sewer Pipe and Flue Linings, Ground Fire Clay

Diamond Bank Building

PITTSBURG, PA.



The Pratt & Cady Co.

HARTFORD, CONN.

Original Makers

OF

A D Brass Globe

Angle and Radiator Valves



We Guarantee the Valve that carries the P. & C. Trademark.



The Pratt & Cady Co.

HARTFORD, CONN.

ORDER DIRECT FROM OUR OWN BRANCHES

MT. SAVAGE

FIRE BRICK

Brands:

MT. SAVAGE
REFRACTO
M. S. A.
CARBURETER

Capacity 20,000,000 Per Year

Union Mining Co.

OFFICE AND WORKS:

MT. SAVAGE, MD.

KILLIAN FIRE BRICK WORKS

KILLIAN, S. C.

Standard Fire Brick. Special Shapes on Order.

LOCOMOTIVE TILES.

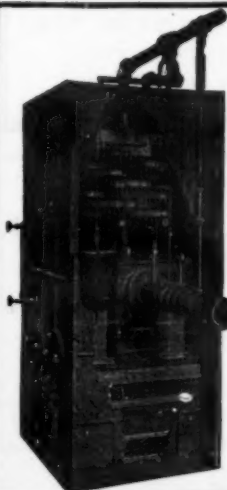
Herbert F. L. Allen

Special Representative

HYDREX FELT & ENGINEERING CO.
DETROIT STOKER CO.
THE OPALUX CO.
THE BLAISDELL MACHINERY CO.

Waterproofing and Insulating Felts, Roofings, Opalux Reflectors, Detroit Automatic Stokers, Vacuum Cleaning Machinery and Air Compressors.

312 Colorado Bldg., Washington, D. C.



The Organ Open Feed Water Heater and Purifier

combining in one apparatus—Feed Water Heater and Purifier, Oil Separator, Drip Receiver and Expansion Tanks.

The simplest and most economical Feed Water Heater.

Write for Booklet.

The Exeter Machine Works

PITTSBURG, PA.

The Bailey-Lebby Co.

MACHINERY and SUPPLIES



AGENTS FOR

REVERE RUBBER CO.

"GIANT" Seamless and Stitched RUBBER BELT
 "RED GIANT" Sheet PACKING
 "REVERE" Spiral and Ring PACKING
 "SAMSON" Piston Rod PACKING
 "REVERE" Hydraulic PACKING
 "REVERE" SUCTION and STEAM HOSE
 We Carry a Complete Line of REVERE Goods.

JEFFREY Elevating and Conveying MACHINERY
 DODGE Transmission MACHINERY
 LESCHEN'S Wire Rope
 DETROIT Leather Belt

BOILERS ENGINES SAW MILLS

WE CARRY A FULL LINE OF
 MILL, MINING AND RAILROAD SUPPLIES
CHARLESTON, S. C.

ROANOKE IRON WORKS, Inc.
 Ornamental and Structural
 Iron and Steel
 ENGINEERS, FOUNDERS and MACHINISTS **ROANOKE, VIRGINIA**

Valk & Murdock Iron Works
 Marine and Stationary Boilers, Phosphate and Fertilizer Machinery
 SHEET IRON WORK IRON AND BRASS CASTING
 East End of Hazel Street CHARLESTON, SOUTH CAROLINA

Richmond Engineering & Mfg. Corporation
 PLATE BAR and SHEET METAL WORKERS STACKS, BREECHINGS AND TANKS
Sturtevant FANS, BLOWERS, HEATING AND VENTILATING APPARATUS, ECONOMIZERS AND MECHANICAL DRAFT
 15th and Brown Streets, RICHMOND, VA.

J. L. LINDSAY, Inc., Richmond, Va.
Power Plant Equipment
 Pipe Valves, Fittings and Steam Specialties
 ROOFING MATERIALS ESTABLISHED 1871

Goldens' Foundry & Machine Co.
 COLUMBUS, GEORGIA

MANUFACTURERS OF

MACHINE MOULDED PULLEYS
 HANGERS SHAFTING

Couplings, Pillow Blocks, Floor Stands, Collars, Etc.

Send for Price List and Discount Sheet

VIRGINIA RAILWAY SUPPLY CO.

(INCORPORATED)

Tie Plates Bearings
 Car Roofs Forgings

Iron, Steel and Prepared Roofs

Offices—ATLANTA, GA.
 1507 Fourth Nat. Bank Bldg.

NORFOLK, VA.
 404 Dickson Bldg.

REPAIR PARTS FOR **TALBOTT & SONS'**
 Engines, Turbines, Saw Mills, etc.

FURNISHED BY

RICHMOND MACHINE WORKS, Inc.

RICHMOND, VA.

S. M. PRICE MACHINERY CO., Norfolk, Va.
 are prepared to furnish estimates on
 Complete Steam Power Plants, Power Transmission, Wood-Working and
 Iron-Working Machinery of all Descriptions
 Agents Virginia, North Carolina and South Carolina
ERIE CITY IRON WORKS' ENGINES AND BOILERS

GEO. W. ROPER, Pres.

W. B. ROPER, Vice-Pres. & Treas.

HARRY BUTT, Sec. & Mgr.

SOUTHERN SUPPLY COMPANY
 NORFOLK, VA.

Engines, Boilers and Machinery, Locomotives
 Supplies of all kinds for Mills, Railroads and Contractors

Baltimore Machine Works
 ENGINEERS AND MACHINISTS

Contractors Complete Power Plants Steam Heating
 Dealers Boilers, Engines, Pumps and Supplies
 ICE AND REFRIGERATING MACHINERY Special Machinery Designed and Built
 Prompt Attention to Repair Work 807 W. Pratt St., BALTIMORE, MD.

Machinery Phosphate Plumbing
 and Mill Supplies

THE CAMERON & BARKLEY CO.
 Charleston, S. C. Branch
 Tampa, Fla.

MANUFACTURERS and JOBBERS

Gasoline
 and Steam
 Power
 Plants a
 Specialty



Improved
 Cotton-
 Handling
 Machinery

SKINNER AUTOMATIC ENGINES
 Saws Mills, Woodworking Machinery,
 Planers, Gibbs Patented Edgers, Gibbs
 Shingle Machines, Brick Machinery,
MURRAY CORLISS ENGINES
GIBBES MACHINERY CO.

Write for catalogue "G." Columbia, S. C.

SMITH-COURTNEY CO.

Richmond, Va.

Virginia and North Carolina Agents for
 the American Tool Works Co.,
 High-Class Lathes, Shapers,
 Planers, Radial Drills, Etc.

AGENTS FOR THE

Fleming-Harrisburg Engine for Electric Service
 Also full line of Engines, Boilers, Iron and
 Woodworking Machinery and Pumps. Largest
 stock of Railroad, Mine and Mills Supplies in
 the South.

STRATTON & BRAGG CO.

PETERSBURG, VA.

MACHINISTS AND ENGINEERS

Special Machinery

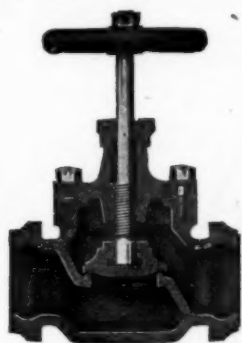
DESIGNED, BUILT TO ORDER AND INSTALLED

Brass and Iron Castings

Power Plant and Mill Equipment a Specialty

ESTIMATES SUBMITTED ON APPLICATION

YORK



Ammonia Valves AND Fittings

Are carried in stock at the following places. Order from the house most convenient to you. Their prices are the same as ours:

New York, 70-72 Trinity Place
Boston, 88 Broad St.
Buffalo, Perry and Miss. Sts.
Chicago, 26-28 N. Clinton St.
Philadelphia, 140 N. 10th St.
Pittsburgh, 337 Water St.
St. Louis, 200 N. Main St.

Nashville, 11th Ave. and Harrison St.
Atlanta, 13 S. Forsyth St.
New Orleans, 4118 Carrollton Ave.
Houston, 710 Franklin Ave.
Los Angeles, 151 N. Los Angeles St.
Oakland, 2nd and Jefferson Sts.
Seattle, 508 First Ave., South
Spokane, R. R. and Stevens Sts.

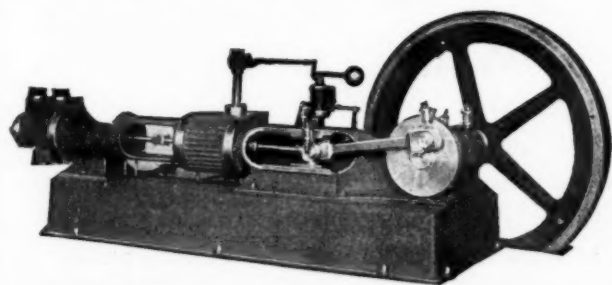
THE YORK MANUFACTURING CO.

Largest Ice Machine Manufacturers in the World

Main Office and Works
York, Pa.

General Western Office
Monadnock Block, Chicago

BRANCHES IN ALL PRINCIPAL CITIES



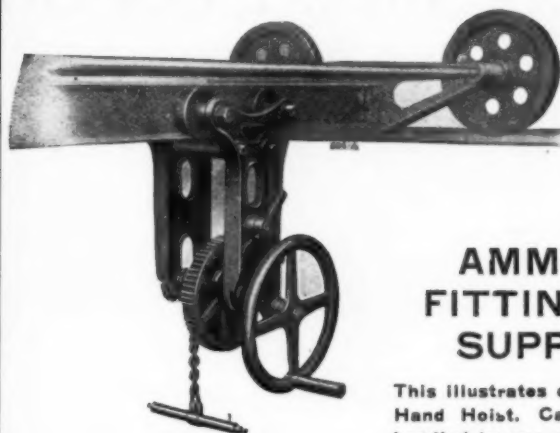
Clear, Pure Ice THE ABSORPTION ICE MACHINE

Clear, pure ice cannot be made from a compression ice machine, because the exhaust steam from the cylinders has to be carried to the ice cans, and this exhaust necessarily contains some oil. The guarantee of a compression machine cannot be stronger than "Merchantable Ice." It is right here that our ABSORPTION ICE MACHINE strikes the other a telling blow. The Absorption's ice is clear and pure. Let us go into further details about this and other qualities.

Machines of any
capacity - - -

Breweries, - - -
Packing Houses, -
Cold Storage Plants,
Ice Factories, Etc. -

Henry Vogt Machine Co.
LOUISVILLE, KY.



Write
for
Catalog
and
Discount
Sheet
on

AMMONIA FITTINGS and SUPPLIES

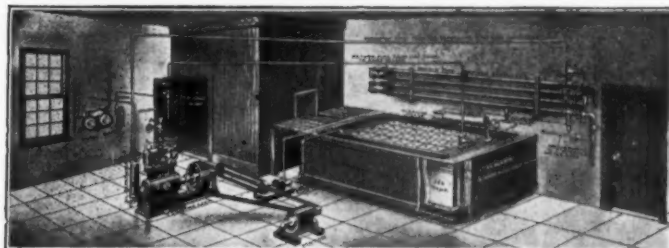
This illustrates our Standard
Hand Hoist. Can easily be
handled by one man.

FRICK COMPANY

WAYNESBORO, PA.

ATLANTA, GA., 406 Atlanta Nat'l Bank

DALLAS, TEX., 712 Wilson Bldg.



REMINGTON ONE-TON ICE PLANT

Many of these machines are in operation in the SOUTH in Mills and other Manufacturing Establishments to supply ICE for local requirements. They can be run from line shaft at small expense, and will soon pay first cost. Machines of any capacity for MAKING ICE or for the COOLING OF COLD STORAGE ROOMS, LIQUIDS OR DRINKING WATER. Over 20 years on the market. Illustrated Catalogue and Reference List upon request.

REMINGTON MACHINE CO.

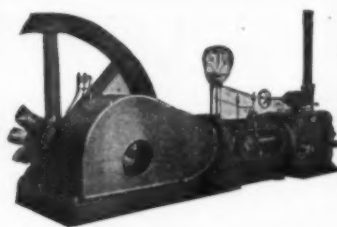
WILMINGTON, DEL.

The Vilter Mfg. Co.

832 Clinton Street
MILWAUKEE, WIS.

CORLISS ENGINES

Ice and Refrigerating
Machinery



IN THE SOUTH



Coosa Mfg. Co., Piedmont, Ala.
5000 Gals. per Hour Softener.

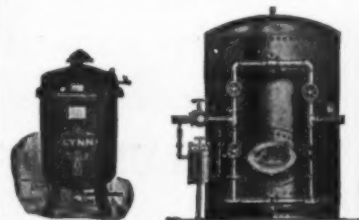
We build Filters and Softeners for
any purpose and of any capacity.

"A Laborer can operate them"

American Water Softener Co.
1019 Chestnut Street, PHILADELPHIA

LYNN FILTERS

ANY REQUIREMENTS



PORCELAIN

GRANULE

The Lynn-Superior Co., Cincinnati, O.
Branch—8 E. Lombard St., Balto., Md.

Foundry Products

From Alabama's Iron Fields

Columns, Lintels, Plates, Grates,
Weights, Tram Cars, Truck Wheels,
Grate Bars, Manhole Rings and Covers,
Special Castings.
We can furnish castings at from-mine-
to-consumer prices.

Let us Quote on Your Requirements.

TUSCALOOSA IRON WORKS
TUSCALOOSA, ALA.

GALENA-SIGNAL OIL CO.

FRANKLIN, PA., U. S. A.

Leading Railway Lubricating and
Illuminating Oils of America

GALENA COACH, ENGINE and CAR OILS, and SIBLEY'S
PERFECTION VALVE and SIGNAL OILS
are standard the world over.

ELECTRIC RAILWAY LUBRICATION A SPECIALTY

Guarantee Cost

Expert Service

S. A. Megeath, President

Gravity and Pressure Filters
THE NEW YORK CONTINENTAL JEWELL FILTRATION CO.
35 South Dearborn St., CHICAGO. 15 Broad St., NEW YORK.
OWNERS OF THE NEGATIVE HEAD FILTER PATENT
LICENSEES: { PITTSBURGH FILTER MFG. CO. NORWOOD ENGINEERING CO.
{ ROBERTS FILTER MFG. CO. J. N. CHESTER, C. E.

ROBERTS WATER FILTERS

DURABLE, EFFICIENT
GRAVITY AND PRESSURE FILTERS

ROBERTS FILTER MANUFACTURING COMPANY, Inc.
DARBY, PHILADELPHIA, PA.

Your Inquiries are Solicited.

Licensed under Negative Head Patents.

WATER FILTERS
WATER FILTRATION PLANTS
For Every Industrial and Domestic Use
WM. B. SCAIFE & SONS CO. (FOUNDED 1802) PITTSBURGH, PA.

GULF REFINING CO.

—REFINERS OF—

Oklahoma and Texas

PETROLEUM

HIGH GRADE

Engine Gasoline
Kerosene
Gas Oil

Painters' Naphtha
Stove Gasoline
Fuel Oil

Paving and Roofing Asphalt

OUR KEROSENE AND GASOLINE
IS MANUFACTURED FROM
HIGH GRADE OKLAHOMA CRUDE OIL

LUBRICATING OILS

CYLINDER ENGINE CORDAGE
HIGH VISCOSITY LOW COLD TEST

**We make a Specialty of Heavy Oils
of Asphaltum Base for
Oiling Roads**

GENERAL SALES OFFICE
PITTSBURGH, PA., U. S. A.

NEW YORK
NEW ORLEANS

District Sales Offices
PHILADELPHIA
HOUSTON
ATLANTA, GA.

BOSTON
TAMPA

Which Is Better Proof?

Theory or Fact? Your answer to this question also answers the question of what lubricant you will use on your engine.

Will you buy some "just-as-good" lubricant, because some theory seems to prove that it *ought* to be a good friction reducer?

Or will you spend your money for a lubricant that you *know* to be good? One that has been thoroughly tried and proved?

ALBANY GREASE

ALL LUBRICANT—NO WASTE

is first, last and above every other lubricant on the market, of absolutely *known* worth.

Don't keep on using the wrong lubricant in the wrong place. Send for a free copy of our new book, "Death to Friction," and get straightened out.


At your dealers—if not, order direct.

ALBANY LUBRICATING CO.

Adam Cook's Sons, Proprietors

708-710 Washington St., New York, U. S. A.





In lubricating efficiency, **No. 6 CYLINDER OIL** outmatches the other kind 25 to 1—and we can prove it. Write for booklet K1.

WM. C. ROBINSON & SON CO
BALTIMORE M D.

Manufacturers Record, the Medium for Machinery Advertisements.

INTERNATIONAL FILTER CO.

Filters

For All Purposes

17th St. and Wabash Ave., Chicago, U. S. A.

A. K. ROBINS & CO.

Canning Machinery

CANS, CASES, LABELS

116 Market Space

BALTIMORE, MD.

What Lubricant?

What lubricant are you using? Is it giving you entire satisfaction? For years our daily work of solving lubricating problems with flake graphite has met with universal success and appreciation. We are confident that we can help you.

DIXON'S Flake Graphite

"The world's most perfect lubricant."

is widely known as the most perfect existing lubricant. It will do what neither oil nor grease can do. Flake graphite attaches itself to the microscopically rough bearing surfaces and forms thin, smooth, durable, veneer-like surfaces that prevent a metal-to-metal contact. It is absolutely unaffected by heat or cold, acids or alkalies. Write now for Sample 80C and "Graphite As A Lubricant."

Joseph Dixon Crucible Co.
Jersey City, N. J.

DREADNAUGHT "FLORIDA"

BREAKS WORLD'S SPEED RECORD

This feat was one of nation-wide interest and in which all of us are bound to take a certain amount of pride. But besides being of general interest it bears a particular interest to all those engaged in business requiring the utilization or production of power. A dreadnaught like the "Florida" is virtually a huge floating power plant. As such, its operation is interesting to the technical man and when by breaking the world's record, as it did, this power plant gave evidence of an extraordinary degree of efficiency; it becomes especially interesting and the factors that contributed to this efficiency are assuredly well worth investigating.

The main turbines which furnish the motive power of this ship employed Texaco Lubricants exclusively.

Without discounting the excellence and skill displayed in operating the vessel, we can with all reasonableness credit a large amount of the increased efficiency to the admirable performance of the Texaco Lubricating Oil employed; in fact, it was said after the trial that the perfect lubricating was in a measure responsible for the high speed attained.

This instance is mentioned to show the satisfaction that Texaco Lubricants give, even under the most severe conditions.

Texaco Lubricants are continually proving their worth and securing added efficiency for consumers in all fields of production and manufacture.

We supply lubricants for every conceivable purpose and for uses ranging in magnitude from service on a single unit to such huge operations as the construction of the Panama Canal.

Motorists and prominent aeroplanists have accorded Texaco Lubricants the highest kind of commendation.

Everywhere they are showing the value of the Texaco quality policy—the policy that requires that each oil receive at least a little more care in refining than is usually the case.

Why not let us co-operate. You stand certain to gain efficiency and save waste. That is the only profitable economy. While you are about it, write for our quarterly "Lubrication," sent free on request.

Address Department M. R., 17 Battery Place, New York City

THE TEXAS COMPANY



You Can Test COLUMBIAN ROPE

The wearing qualities of rope depend upon the kind of fibre used. If the fibre is good and strong the rope will wear long.

We are so sure that the grade of fibre used in our rope is better than the kind you are using, that we will send you a sample of Transmission rope so that you can test the fibre yourself. One end of the sample will have the strands loosened. Try to break a single fibre with your hands. You will be surprised at the wonderful strength and will know *why* COLUMBIAN Manila Transmission Rope wears so long. Let us send you a sample today.

Our Columbian Book of Rope Transmission is sent to those who ask for it.

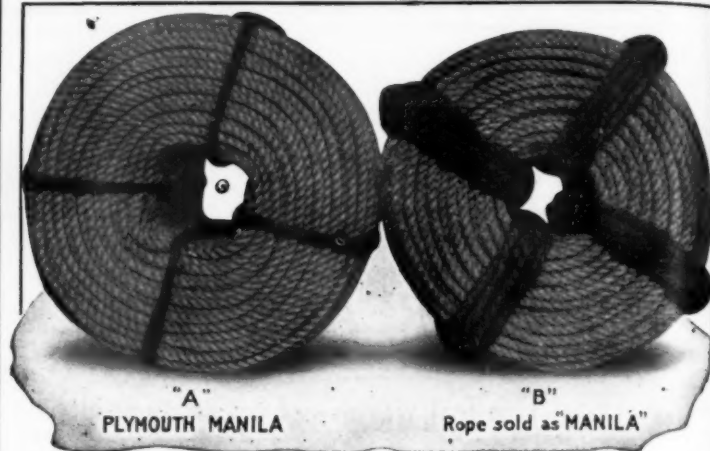
COLUMBIAN ROPE COMPANY

317-359 Genesee St.,
AUBURN, N. Y.

New York Office:
62 South St.

Boston Office:
131 Beverly St.

Chicago Office:
370 River St.



The Difference in Manila Ropes

An actual test of these two coils of 1/2-inch diam. rope bought in the open market—a PLYMOUTH rope and a "so called" Manila rope—told this interesting story of comparative rope values:

A comparison showed:	"A"	"B"
Length of rope in coil of 97 lbs.	1250 ft.	1070 ft.
Weight of lashings	1 lb.	3 lbs.

The test proved:		
Wt. per 10 ft. of rope	13 3/4 oz.	14 1/2 oz.
Strength at breaking point	2907 lbs.	1450 lbs.

(Use formula: Actual Strength ÷ Wt. per 10 ft. = Value)

Comparative value ("A" worth 100%)	{ 3477 or 100%	{ 1642 or 47%
------------------------------------	----------------	---------------

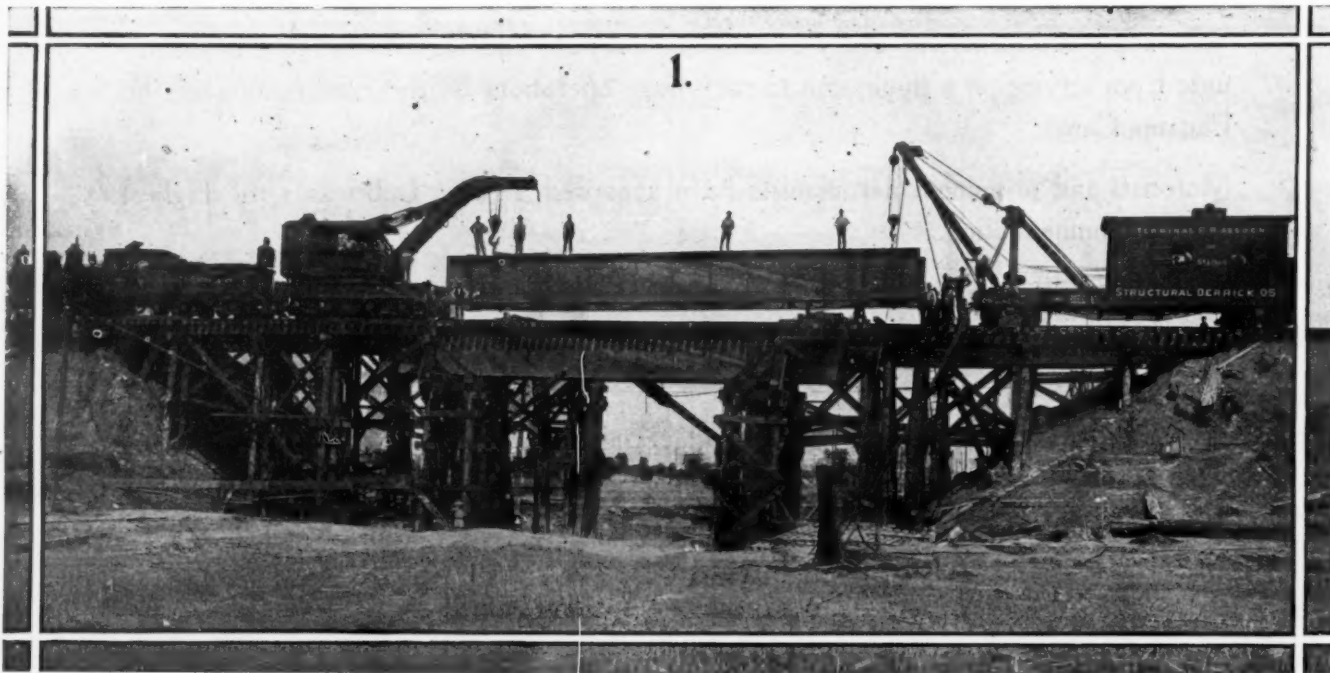


"A" has more than twice the value of a rope like "B"; yet PLYMOUTH costs but a very little more. Low price is often tempting but not a saving. You'll always find PLYMOUTH rope the best investment.

PLYMOUTH CORDAGE CO.
NORTH PLYMOUTH, MASS.



AGAIN STANDS THE TEST



This shows two derricks of the St. Louis Terminal Railroad Asso. used in rebuilding east approach of Free Bridge, equipped with Yellow Strand and B. & B. Crucible Steel Wire Ropes. They "made good" on this job as they always have done.

WRITE FOR CATALOGUES AND PRICES No. 8.

Broderick & Bascom Rope Co. Main Office, St. Louis, Mo.
BRANCHES—NEW YORK CITY. SEATTLE, WASH.

Selecting Belts for Southern Sawmills

means more than merely buying "good Belting"

Sawmill Special



Best for Main Drive

Lynx Special Planer



Best for Planers, Surfacers and Fans

Titan



Best for Every Other Service

Quality of Materials plus Knowledge of working conditions is the basis upon which we build belting to sell. It is the only basis on which you should buy belting to use.

We know from years of experience that one type of belt construction, no matter how thoroughly built it may be, will not meet the requirements of different drives in Southern Saw Mills. And it is a useless expense to go to the other extreme by using half a dozen constructions.

We boiled down the peculiar conditions of every drive—and found a uniformity of conditions for certain drives. By building three different constructions we are able to equip every drive in your saw mill with a belt featuring all the qualities necessary to secure longest life and highest efficiency at a minimum expense.

Sawmill Special for main drives

Lynx Special Planer for planers, surfacers and fans

Titan for every other service

Write us for facts and figures—also our booklet on Sawmill Belt

The Diamond Rubber Company, Akron, O.

Distributing Stations in All Principal Cities



EUREKA FIRE HOSE

Original and largest manufacturers of RUBBER LINED COTTON HOSE. Fire Hose for all purposes and in all sizes. Our special brands are:

EUREKA—4-Ply PARAGON—3-Ply RED CROSS—2-Ply

The only circular and seamless woven brands of Fire Hose made that possesses four, three and two entirely distinct and independent plies, and can be entirely separated, and possesses four, three and two warp and filling threads.

EUREKA FIRE HOSE MFG. CO., NEW YORK

BOSTON, MASS.
SYRACUSE, N. Y.
PHILADELPHIA, PA.

COLUMBUS, O.
ATLANTA, GA.
CHICAGO, ILL.
SAN FRANCISCO, CAL.

MINNEAPOLIS, MINN.
OMAHA, NEB.
KANSAS CITY, MO.
DALLAS, TEX.

TORONTO, ONTARIO.
DENVER, COLO.
SPOKANE, WASH.

EVERY COTTON MANUFACTURER

SHOULD USE OUR

COMBINATION TANNED BELTING

FOR

MULES, CONES, MOTORS and ALL HARD DRIVES

Many know this from experience

All should know by actual test

WRITE FOR PRICES AND SAMPLES

For Wet Places

TRITON

Waterproof Belting

Is Best

Samples gladly sent

THE NORWICH BELTING CO.

NORWICH, CONN.



Good Belts Save Money

—a fact which has been proven true many hundred times. To the layman all belting looks very much alike. It takes an expert to detect poor belting if the same be skillfully made up. In actual use, however, the difference is pronounced. Loss of power from slipping, lost time from breakdowns and reduced production of machines make the cheap belting far more costly in the end. For absolute satisfaction use

Cocheco Belts

on your drives and enjoy the service of the best belting that first-class stock and most expert workmanship can produce. Cocheco quality is plainly to be seen in the smoothly running, full power transmitting drives where this belt is used.

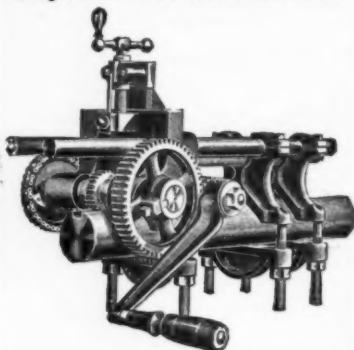
Send for catalog and let us quote you.

I. B. Williams & Sons
Dover, N. H.

72 Murray Street, New York
157 Summer Street, Boston
14-16 N. Franklin St., Chicago

Perfect Key Seats in Shafting

Anywhere with this machine.



The Burr Portable Key Seater

Indispensable for the repair shop, can be carried anywhere, slipped over heavy shafting or spindles, has capacity for key seats up to 5-inch diameter, and will mill a key seat 12 inches long without resetting.

This tool can be used in almost any position and in the most cramped places. It is rapid in operation, cuts without jar or chatter and produces accurate work.

Made in two sizes. No. 1, as shown, \$40.00 net, complete with cutters.

Send for Circular.

JOHN T. BURR & SON

435 Kent Avenue, BROOKLYN, N. Y.

ALL STANDARD BEARINGS

are fully described in our
New Catalog 24A

Send for It

STANDARD ROLLER BEARING CO.
PHILADELPHIA

FACTORY TIME CHECKS



No other system has proved so simple, so inexpensive to install and so satisfactory in operation as the TIME CHECK SYSTEM. Our pamphlet, "Time Checks and Their Use," is well worth the three minutes necessary for a reading.

Address Dept. J

American Railway Supply Co.
134-136 Charles St., New York

Manufacturer of all sorts of
**Stamped and Embossed
Metal Work**

Hotel checks, key tags, door numbers and badges. Breast and hat badges for electric and steam road employees, police and fire departments, etc.

Complete Catalogue Free.

American Railway Supply Co.
Address Dept. J
134-136 Charles St., New York

Belt Assurance.

"BALTOBELT"

The Twentieth Century achievement in Leather Belt Making. A product of honest, old-fashioned oak tanned Leather and skilled workmanship, perfected by many years of careful labor and study. Send for booklet and prices.

BALTIMORE BELTING COMPANY,
Leather Belt Makers, Baltimore, Md., U. S. A.

**PURE
OAK
TANNED**

**FOR
Leather Belting**

**ACID
WATER
STEAM
PROOF**

THE DRUID OAK BELTING COMPANY
(INC.)
BALTIMORE, MD.

ALWAYS USE "CHESAPEAKE BELT"

For Driving and Conveying

Canvas Stitched. Not affected by weather or steam. Fully guaranteed.

Chesapeake Belting Co.,

Baltimore, Md.

WIRE ROPE



of all kinds and sizes for
all purposes.

Twenty-two years' experience.

Catalogue sent on request.

WILLIAMSPORT WIRE ROPE CO.

WILLIAMSPORT, PA.

"ALL GRADES OF WIRE CLOTH MADE OF ALL KINDS OF WIRE"

THE NEW JERSEY WIRE CLOTH CO.
Manufactures

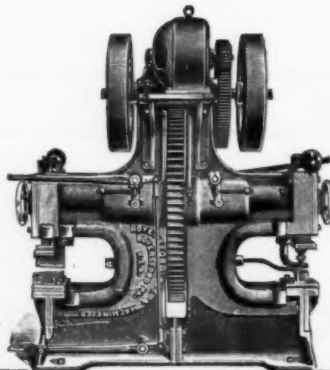
WIRE CLOTH

WIRE LATHING
POULTRY NETTING
WOVEN WIRE FENCING

Our Extensive Facilities Enable Us to Execute Large Orders Promptly at Low Prices

Roebbling's Wire Used in All Our Products

Office and Works, - - - TRENTON, N. J.



MOTOR DRIVEN PUNCH AND SHEAR

We are building a full line of these tools for all purposes. Our machines require less floor space than any other Punch and Shear on the market. Every one guaranteed.

Get our new Catalog.

ROYERSFORD FDY. & MACHINE CO.
Royersford, Pa.



STIEFF PIANOS

Meet the Demands of the
Critical Buyer

**GRANDS
PLAYERS OF
UPRIGHTS**

ESTABLISHED 1842

Sold Direct Factory to Home

Write for Catalogue.

CHAS. M. STIEFF

9 N. Liberty St. Baltimore, Md.



—BUY—
American Steel Pulleys

This Trade Mark appears on the face of every American Wrought Steel Pulley, and is a positive guarantee of the high quality of our product.

Be sure and specify

The "AMERICAN"

and see that each Pulley bears this emblem.

Made in sizes 6" to 60" diameter, and 2" to 36" face.
All designed and warranted to do Double Belt Service.

Sold by Dealers Everywhere.
Send for Catalogue.



Patented.

THE AMERICAN PULLEY COMPANY

OFFICE AND WORKS: PHILADELPHIA, PA.

Warehouses: New York, 203 Lafayette St. Boston, 105 Pearl St. Chicago, 124 S. Clinton St.

THE A. & F. BROWN CO.

ENGINEERS, FOUNDERS, MACHINISTS AND MILLWRIGHTS

172 FULTON ST., NEW YORK

**POWER TRANSMISSION
MACHINERY**

FRICTION CLUTCH COUPLINGS
FOR HEAVY WORK

GEARS

Friction Clutch Pulleys
and Couplings



Gears of all kinds
and sizes

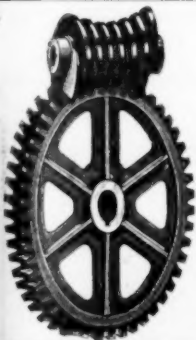
MACHINE MOULDED, CUT SPUR AND PLANED BEVEL GEARS
OF EVERY DESCRIPTION

ROPE DRIVES A SPECIALTY

WE LAY OUT, MAKE THE DRAWINGS, FURNISH THE MATERIAL
AND ERECT IT

SEND FOR CATALOGUE

WORKS—ELIZABETHPORT, N. J.

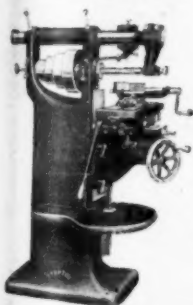


**Albro-Hindley
WORM and SPIRAL
GEARING**

Consumes Less Power and Gives
Better Results Than the
Old Style Gearing

WRITE FOR CATALOG.

THE ALBRO-CLEM ELEVATOR COMPANY
PHILADELPHIA, PA.



WE MAKE
SHAPERS
AND
Hand Milling Machines

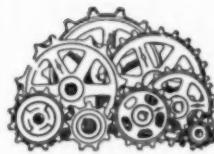
We would be glad to send
our Circulars and Prices.

JOHN STEPTOE SHAPER CO.

Camp Washington
CINCINNATI, OHIO



SPROCKET WHEELS



W. E. Caldwell Co.

"INCORPORATED"
ENGINEERS, FOUNDERS and MACHINISTS.

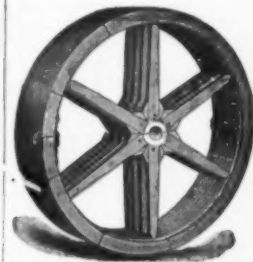
MANUFACTURERS OF

Power Transmission Appliances,
Shafting, Hangers, Pulleys,
Couplings, Friction Clutches,
Pillow Blocks,
Rope Transmission, Etc.

OFFICE AND FACTORY:

Brook and
Brandeis Sts.

LOUISVILLE, KY.



**Gilbert
Wood
Split
Pulleys**

SAGINAW MANUFACTURING CO.

Saginaw, Michigan, U. S. A.
New York Branch, 88 Warren Street
Chicago Branch, 105-109 N. Canal St.
Sales Agencies in all the Principal Cities.
New illustrated Catalogue on request.



METALINE

(Trade Mark Reg.)

Most Reliable
Least Wearing
Positively Oilless
No Fire Danger

BUSHINGS for
LOOSE PULLEYS

THE METALINE COMPANY
Corporate name changed from North American Metaline Co.
West Ave., Cor. W. 3rd St., Long Island City, N. Y.

CUT GEARS

TO 96" DIAMETER

HERRINGBONE, SPUR, BEVEL, MITER, METAL, RAWHIDE

THE EARLE GEAR & MACHINE CO.

Stanton and Wyoming Avenues

PHILADELPHIA, PA.



POWER TRANSMISSION

Shafting, Pulleys, Gearing, Con-
veying and Elevating Machinery.

THE WOLF CO., Chambersburg, Pa.

The Saving of Time of Machine Shops

by using tools made of

HIGH SPEED STEELS

reaches considerable importance in course of a year.



— OUR —
Capital High Speed Steel

AND

Dannemora Tool Steel



are unexcelled for machinists' tools of any sort. They turn out more and a higher grade work in a given time than other steels. Always satisfactory. It will pay to use them, and we will gladly answer questions and go into other details with those interested.

We carry a full stock of Steels, Bars, Sheets, Tubing, Shafting, etc.

Catalogue "D," April, 1911, 128 pages, explains all. Promptly sent on request.

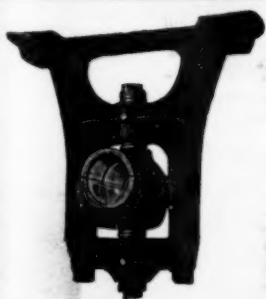
FIELD & COMPANY, Inc.

116 N. Seventh Street

PHILADELPHIA, PA.

CRESCENT BELT FASTENERS

The Strongest, Safest, most Durable, and most Economical for
Joining Leather, Balata, Canvas, Rubber, Hair and all Fabric
Belting of every length, width and thickness
CRESCENT BELT FASTENER COMPANY, 381-5 4th Ave., New York, U. S. A.



T. B. WOOD'S SONS Co., CHAMBERSBURG, PA.

Manufacturing Engineers

**Modern and Approved Appliances for
the Transmission of Power**

Upon request, our new and complete Catalog No. 55 will be mailed promptly to any
user of power



Cold Rolled Steel for Shafting

some things worth knowing about it

❑ Cold Rolled Steel Shafting insures greater transmitting capacity than any other form of steel, relative diameter of shafting considered.

❑ The resistance of Cold Rolled Steel Shafting to torsional stress is increased at the yield point from 31 to 64 per cent.

❑ By Cold Rolling our Steel Shafting we increase the resistance to transverse loads 13 to 69 per cent. over other methods.

❑ If due care is exercised in the alignment of Cold Rolled Steel shafting, crystallization is practically eliminated.

❑ The combination of high elastic limit with strength and stiffness, and the retention of a large measure of ductility and resilience make cold rolled steel an exceptionally useful metal.

❑ We were the pioneers in the art of cold rolling and have been engaged in it for almost half a century. During this long experience we have designed and built many special machines and tools for just this work, and have organized and trained a corps of skilled men such as can be found in no other works.

❑ Send for our complete illustrated Catalog "M" on Power Transmission Equipment.

Jones & Laughlin Steel Company

American Iron and Steel Works
PITTSBURGH

89



"MORSE"



The name that means
QUALITY

CUTTERS



Guaranteed to do fine,
quick, clean-cut work.



Send for a "MORSE" Catalog

Morse Twist Drill & Machine Co.
New Bedford, Mass., U. S. A.

Combined Multiple Punch and Shear Three Tools In One

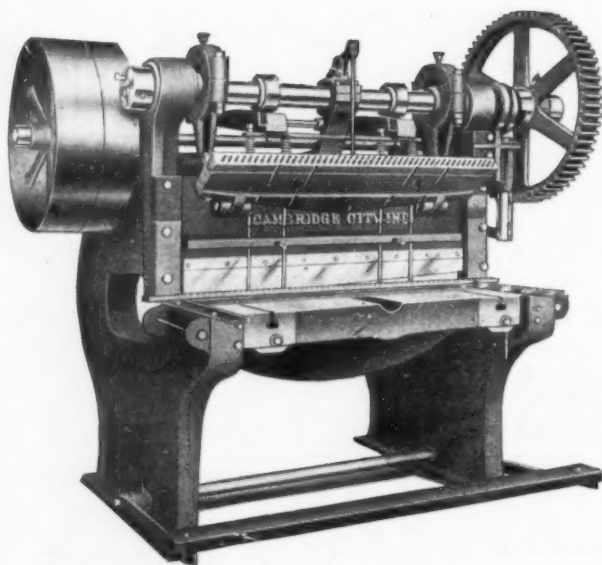


Fig. 1 shows the punch-cross-head disengaged, thus converting the machine into a regular shear for shearing only.

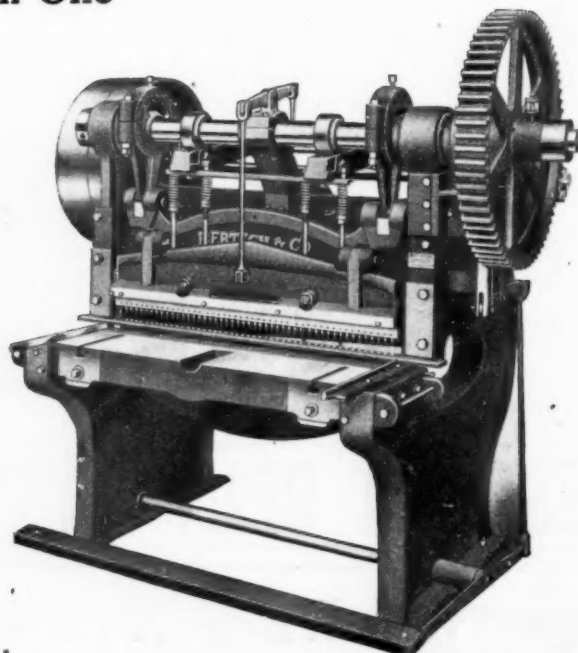


Fig. 2 shows the punch-cross-head locked in position for punching and shearing in one operation.

These cuts show our Patented Combined Multiple Punch and Squaring Shear, which will shear and punch a sheet in one operation, punch only, or shear only when the punch-cross-head is disengaged, thus combining three tools in one. It therefore saves floor space, time, power and labor. WRITE FOR CATALOG "E"

BERTSCH & COMPANY, Cambridge City, Ind.



Neither a grinding machine nor any grinding method can be successful in the highest degree without the help of the right kind of wheel.

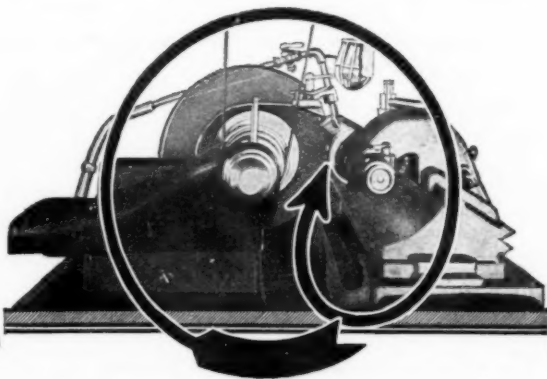
Norton Grinding Wheels *Alundum* AND *Crystolon*

have helped to bring about the evolution of grinding. The most modern abrasives, Alundum and Crystolon; improved methods of wheel manufacturing; research and experimental laboratories—all these things make Norton Service of value to the users of grinding machines and wheels.

NORTON COMPANY
WORCESTER, MASS.

Alundum Plant, Niagara Falls, N. Y. New York Store, 151 Chambers St.
Crystolon Plant, Chippawa, Canada Chicago Store, 11 N. Jefferson St.

304



Another Proof of the Economy of ABRASIVE WHEELS

The above photograph shows an "ABRASIVE" WHEEL grinding steel rolls for roller bearings at the large shops of the Standard Roller Bearing Works, Philadelphia.

When many successful concerns like this endorse "ABRASIVE" WHEELS, it shows that these wheels have been proven their most economical grinding proposition.

The reason for this success of "Abrasive" Fast Grinding Wheels

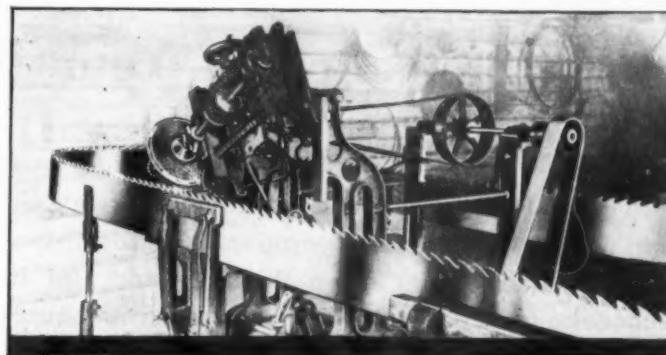
Various grinding operations must require different grades of wheels, for each kind presents special difficulties to be overcome, and one wheel cannot do all kinds of grinding best.

Realizing this, different "ABRASIVE" WHEELS are made to meet these different conditions. That is why, being better suited to your work, "ABRASIVE" WHEELS will be such a profitable investment for you.

However, so you can find this out for yourself, we want you to let us send you an "ABRASIVE" WHEEL to test right under the actual conditions in your own shop.

Simply write and tell us on the back of a postal card the work to be done, and mail to us right now.

ABRASIVE MATERIAL CO.
PHILADELPHIA, PA., U. S. A.



An Aloxite Saw Gummer Lasts 8 Months—Gums 1225 Saws

IN an Indiana mill that cuts 20,000 feet of hardwood a day, a 12-inch Aloxite wheel gums a 15-gauge saw, 47 feet long, in 26 minutes—going around it twice. One of these wheels lasted 8 months—put 1225 saws in perfect condition before wearing out. The best of competing wheels takes from 40 to 60 minutes to put the same saw in shape and doesn't last half as long. The boss filer of the mill says Aloxite wheels cut wonderfully fast and can be forced to the limit.

This is the kind of wheel service your filers should be getting—they will if they order Aloxite wheels

LET US SEND YOU A TRIAL WHEEL TO SHOW YOU JUST WHAT ALOXITE WILL DO

The Carborundum Co.
Niagara Falls, N. Y.



VITRIFIED GRINDING WHEELS

There is a grinding wheel made for the particular class of grinding you have, and by procuring same your grinding troubles will disappear.

We would be pleased to receive full information regarding the class of grinding that you have.

Catalogue will be sent on request

VITRIFIED WHEEL CO., WESTFIELD, MASS.

MORAN AUTOMATIC FILLER

For Half Barrels, Barrels, Casks or Drums
For Alcohol, Whiskey, Coal Oil, Gasoline, Molasses, Residuum, Machinery, Cylinder and Lubricating Oils, Tanning Extracts, etc.

AUTOMATICALLY STOPS WHEN FULL

Write for New Catalogue.



Moran Filler with Flexible Ball Joint Connection.

Moran Flexible Steam Joint Co., Inc., Louisville, Ky.

We are SPRING SPECIALISTS. You should know us.

SPRINGS OF
Flat,
Round
and
Square
Wire

All Shapes and Styles
High Grade Machinery Springs

SPRINGS OF
Steel
Brass
Music Wire
Phosphor Bronze
Etc.



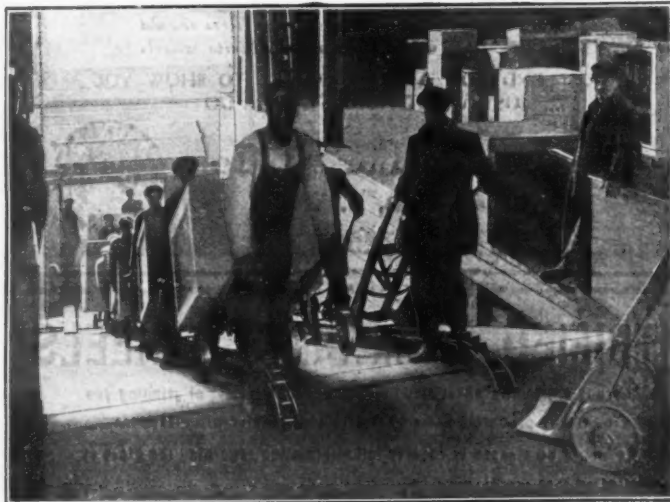
Raymond Mfg. Co., Ltd., Corry, Pa.

Stop Moving Your Freight and Merchandise at a Disadvantage

In every Factory, Warehouse, Railway Freight Station, Steamship Dock or Pier, quick and constant moving of freight and merchandise is imperative. Quick transportation and handling is the biggest factor in the earnings of the Companies—and cutting down the time and cost in getting freight on and off trains and boats, and in moving merchandise from floor to floor in factories, warehouses, etc., is the ALL-IMPORTANT thing. If depending on men to pull heavily loaded trucks up steep gangplanks and inclines, you are certainly handling freight at a great loss and disadvantage. Indisputable proof of this has been demonstrated by leading Railway, Steamship, Factories, and Warehouse Companies who, through the use of

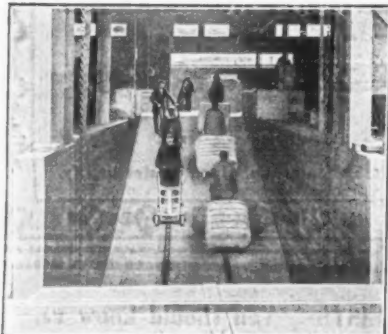
Otis Inclined Elevators

Save 60% to 80% Over Other Methods of the Time and Cost
of Merchandise and Freight Handling



Otis "Dock" Type Inclined Elevator

ONE Otis Inclined Elevator will move MORE goods in a given time than can six or eight vertical elevators of the usual type;—or more goods in the same time and at less cost than 60 to 80 men with trucks alone could handle it. You can overload men, but you cannot overload the Otis Inclined Elevator;—its capacity is limitless.



"Dock" Type—Note steep grade at low tide

Furthermore, its use enables "green" men to do the work of trained men. Its enormous increase in capacity enables you to maintain schedules. It is economical—an electric motor is all that is required for operation, and the current cost, results considered, is infinitesimally small. Angle of incline may be changed as desired; note steep grade at low tide. Men, with trucks and heavy loads, are continuously brought to the floor-level quickly, safely, and without physical effort.

We make inclined and horizontal types adapted to every condition where freight is to be moved from level to level or widely separated points.



Otis "Factory" Type Inclined Elevator

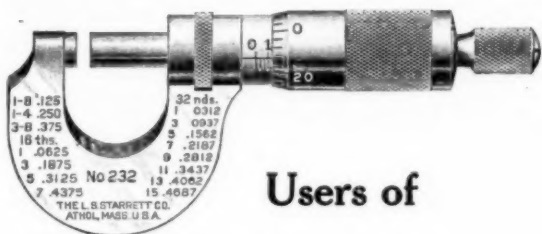
You should be interested in this better, faster and cheaper method. An investigation of the type adapted to your particular requirements and the money and time-saving advantages effected will surprise you. Without obligation any of our offices will submit plans and furnish estimate on equipment and operating cost. Write to us. Let us help you to largely *increase* your capacity at *decreased* cost.

Otis Elevator Company, Eleventh Avenue and Twenty-sixth Street, **New York**

Offices in all Principal Cities of the World

Duplicate Parts

are never right unless the original is within the allowable limits



Users of

Starrett Micrometers

make duplicate parts with the full assurance that their originals are right, because the **Starrett Micrometer** is right when new and is easily made accurate if worn ever so little.

The anvil is fixed—not movable as in other micrometers—possible wear is taken up by moving the adjustable sleeve with a spanner wrench.

Our micrometers are graduated in either Metric or English systems.

They read to 1/100-millimeter or 1/10,000-inch

Full line illustrated in Catalog 19EC.

Send for it.

The L. S. Starrett Co.

Athol, Mass.

NEW YORK

LONDON

CHICAGO

42-34

AMERICAN ELEVATORS

FOR ANY REQUIREMENT

Operated Magnetically by Switch in Car, Automatically by Push Buttons, Mechanically by Pilot Device or Hand Cable.

Every Safety device known is attached to our equipment.

Single or Tandem Gear

Drum or Traction Type

AMERICAN MACHINE CO., LOUISVILLE, KY.

Largest Independent Elevator Plant in Entire South

REPRESENTATIVES:

Augusta, Ga., Moore-Edenfield Elec. & Mfg. Co.
Clarksville, Tenn., W. M. Case.
Dallas, Texas, J. Peyton Hunter.
Macon, Ga., Singleton-Smith Co.
Monterey, Mex., C. Holck & Co.

Montgomery, Ala., C. L. Smith.
Nashville, Tenn., John Bouchard & Sons Co.
New Orleans, La., American Elevator & Electric Co.
Oklahoma City, Okla., Frank Long.

ELEVATORS PASSENGER & FREIGHT ELECTRIC, HAND POWER, and BELT POWER

Westbrook Elevator Co.

Correspondence Solicited

ATLANTA, OFFICE, 216 Rhodes Building

DANVILLE, VIRGINIA

Standard for a quarter century.
Passenger and Freight.
All Powers.

TURNER ELEVATORS

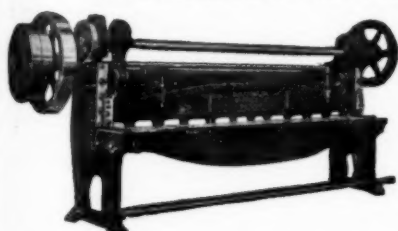
K. C. ELEVATOR MFG. CO.

(Established 1881)

107-113 W. 19th St., Kansas City, Mo.

STOLL PRESSES, SHEARS and DIES

Constructed with the best of workmanship and materials for



**GOOD WORK
HARD WORK and
LOTS OF WORK**

and will do it where others have failed. Complete equipments embodying the latest improvements and labor-saving devices for making cans and forming sheet metal of every description, including culvert machinery.

Send specifications stating requirements.

Cut shows improved power squaring shears for No. 14 and lighter soft steel. Are backed geared. Have tight and loose pulleys. Provided with automatic spring hold-downs, a positive clutch of most durable construction. Have regular equipment of front, back, bevel and side gauges.

CATALOGUES SENT ON REQUEST

THE D. H. STOLL CO.

33 LANSING STREET
BUFFALO, N. Y.

MACHINE TOOLS SHAW ELECTRIC TRAVELING CRANES SUPPLIES MACHINISTS, MILL and ENGINEERS

ENGINEERING SPECIALTIES OF ALL KINDS

MANUFACTURED BY
The Shaw Electric Crane Co.

The Ashcroft Mfg. Co.

The Consolidated Safety Valve Co.

The Hancock Inspirator Co.

The Hayden & Derby Mfg. Co.

OWNED AND OPERATED BY

MANNING, MAXWELL & MOORE, Inc.

85-87-89 Liberty Street, New York
Los Angeles

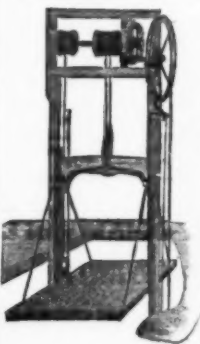
Chicago
Detroit
Indianapolis

Philadelphia
Boston
Milwaukee

Pittsburgh
St. Louis
Buffalo

Cleveland
Yokohama, Japan
San Francisco

ELEVATORS



FOR
HAND,
BELT
OR
ELECTRIC
POWER

Write for Prices and Descriptive Matter

Mention this paper.

Sidney Elevator & Mfg. Co.

SIDNEY, OHIO

ELEVATORS PASSENGER AND FREIGHT HAND - BELT - ELECTRIC - HYDRAULIC PUMPS

Tank, Deep Well and Boiler Feeding
All Latest and Most Efficient Designs
MOFFATT MACHINERY MFG. CO.
CHARLOTTE, N. C.

ELEVATORS

WARSAW ELEVATOR CO.

T. FRANK WILHELM, Manager
BALTIMORE, MD.

STANDARD ENGINE LATHES



14" to 24" swing
HIGH GRADE TOOLS

With all Modern Improvements.

GREAVES, KLUSMAN & CO.
CINCINNATI, OHIO, U. S. A.

Architects, Contractors, Engineers, Chemists.

MILBURN, HEISTER & CO.

ARCHITECTS

WASHINGTON, D. C.

CHAS. GODFREY PETTIT, Jr.

ARCHITECT

DANVILLE, VA.

CAIN, SHEPHERD & PEALE

ARCHITECTS

RICHMOND, VA.

Recently, and for past eight years, Architect in James Knox Taylor's Office, Supervising Architect for all U. S. Government Public Buildings, etc., in the United States, Washington, D. C.

NORMAN W. SOREY

ARCHITECT

209-210 Carpenter Bldg., Plume St., Norfolk, Va.

CHARLES H. NICHOLS

Engineer and Architect

1133 Broadway, New York

Mem. Am. Soc. M. E. Assoc. A. I. E. E.

M. Am. Soc. C. E.

Factories and Mills Designed, including Construction, Ventilation, Lighting, Sanitation, Fire Protection and Power Plant.

Day & Zimmermann

Successors to

DODGE, DAY & ZIMMERMANN

ENGINEERS

608 Chestnut St., Philadelphia

Layout, Design, Construction, Industrial Plants.

Examination, Reports and Operation, Public Service Properties.

L. L. SUMMERS

J. M. S. WARING

L. L. SUMMERS & CO.

ENGINEERS

REPORTS AND CONSTRUCTION

First National Bank Bldg. CHICAGO

THE JAMES H. HARLOW COMPANY

ENGINEERS - CONTRACTORS

Hydro-Electric Powers, Electric Railways,

Water Supply, Sewerage, Irrigation.

Design—Finance—Construct.

BALTIMORE, MD.

B. G. KLODT

Designing and Constructing Engineers

Specialist on Sewer, Water, Power, and

Irrigating Systems.

Gunter Bldg., Rooms 526-28-30, San Antonio, Tex.

C. S. YOUNG COMPANY

Civil, Mechanical and Structural Engineers.

Examination and Reports for Development

on Mexican Properties.

501 Frost Building San Antonio, Texas.

ALEXANDER POTTER, C. E.

Hydraulics.

Sanitation.

Concrete Structures.

Designed—Financed—Executed.

114 Liberty St., NEW YORK.

Tel. Rector 568.

W. S. MERKLE

Consulting Engineer

WATER, ELECTRIC, HYDRO-ELECTRIC

20 Years' Experience

New Bank Commerce ST. LOUIS

Rockwell - Slining Engineering Co., Inc.

Design Construct Operate

Irrigation Systems, Water - Works.

Electric Light Plants

718 Gunter Building San Antonio, Texas

L. T. Emory, C. E. R. H. Eisenbrey, B. S. in Ch. E.

EMORY & EISENBREY

Philadelphia, Pa.

CIVIL, CHEMICAL AND

INDUSTRIAL ENGINEERS

Designs of Industrial Plants. Modernizing.

Investigations and Reports on Manufacturing

and Mining Propositions.

THE ARNOLD COMPANY

ENGINEERS - CONTRACTORS

ELECTRICAL - CIVIL - MECHANICAL

105 SOUTH LA SALLE STREET

CHICAGO

Gardner & Howe

M. A. S. C. E.

A. M. A. S. C. E.

ENGINEERS

Reinforced Concrete

Porter Bldg.

Memphis, Tenn.

HILDRETH & CO., Inspecting Engineers

Structural and Reinforcing Steel.

Cement and Materials of Construction.

ERNEST L. MYERS & CO., - Representatives

509 Juanita Bldg., DALLAS, TEX.

BATES & HUTCHINSON

C. E.

M. E.

Consulting and Constructing

Engineers.

Hydraulic, Sanitary, Municipal, Reinforced Concrete and Steel Design and Construction.

FIRST NATIONAL BANK, ROANOKE, VA.

Mem. Am. Soc. of Engineering Contractors.

GEO. W. ANGLE

Consulting Engineer

Chief Engineer 60 New Street

Central Construction Co. NEW YORK

American Cen. Rwy. Co.

NEW YORK

E. W. MYERS

Consulting Engineer

Water Power, Water Supply,

Sewerage

GREENSBORO, N. C.

MARTIN J. LIDE

BIRMINGHAM, ALA.

Consulting and Constructing Electrical and Mechanical Engineer.

Frederick H. Lewis

Civil and Mechanical Engineer

Consulting Engineer

Brown-Marx Bldg. Birmingham, Ala.

S. D. BROWN

CONSULTING ENGINEER

Water, Light and Sewerage Systems

ELECTRICAL WORK A SPECIALTY

Road and Street Work Land Developments

806 JAMES BLDG., CHATTANOOGA, TENN.

FULLER-COULT CO.

CONSULTING and SUPERVISING ENGINEERS

Chemical Building, St. LOUIS

Electric Light and Power Plants, Hydro-Electric

Developments, Sanitary Sewer Systems, Water

Works Systems, Street Paving.

William C. Spiker, C. E.

CONSULTING ENGINEER

Forsyth Bldg. ATLANTA, GA.

Buildings, Bridges, Dams,

Hydro - Electric Powers.

CUTHBERT A. OSBORN

CIVIL AND MINING ENGINEER

Waterworks, Sewers, Street Paving,

Real Estate Developed

319 EMPIRE BUILDING, CLARKSBURG, W. VA.

The Manning-Hughes Co.

ENGINEERS - CONSTRUCTORS

ELECTRICAL - CIVIL - MECHANICAL

CAMDEN, S. C.

CHARLESTON, S. C.

ARTHUR PEW

M. AM. SOC. C. E.

M. INST. C. E.

Consulting Engineer

Municipal Work ATLANTA, GA.

EDGAR M. GRAHAM

ASSOC. M. AM. SOC. C. E.

CONSULTING ENGINEER

MUSKOGEE, OKLAHOMA

WESTERN ENGINEERING CO.

INCORPORATED

CONSULTING ENGINEERS

Electric Lighting, Water Works, Sewers, Paving

703-4-5 American National Bank Building

Oklahoma City, Oklahoma

HENRY I. LEA

CONSULTING GAS ENGINEER

Gas Building, Chicago

Design—Construction

Management—Appraisal

Complete Examinations Made

H. S. Jaudon Engineering Co.

DESIGNING, SUPERVISING AND

CONSULTING ENGINEERS

Specialty—Water Works, Sewers and

Street Paving

MAIN OFFICE, Box 582, SAVANNAH, GA.

Box 576, ATLANTA, GA.

ROBERT W. HUNT & CO.

ENGINEERS

INSPECTION AND TESTS

Railroad Materials, Structural Steel and Cement.

Cars, Locomotives and All Machinery

CHICAGO NEW YORK PITTSBURGH

St. Louis London Montreal San Francisco

Toronto Seattle Vancouver Mexico City

HIRAM ALLEN MILLER

CONSULTING ENGINEER

8 Beacon Street Boston, Mass.

Thirty Years' Experience

Expert Work a Specialty

REFERENCES

Prof. Geo. F. Swain, Harvard University

Prof. Wm. H. Burr, Columbia University

Henry S. Pritchett, L. L. D., President Carnegie

Foundation, New York City.

GEO. H. WHITFIELD

Consulting Electrical and Mechanical

Engineer

REPORTS PLANS SPECIFICATIONS

Address care Virginia Railway & Power Co.

RICHMOND, VA.

B. PARKS RUCKER

CHARLOTTE, N. C.

Consulting and Constructing

ELECTRICAL ENGINEER

Estimates, Plans, Specifications and Super-

vision of Construction of Lighting, Industrial

and Power Installations. Hydro-Electric

Plants, Power Transmission, Municipal

Lighting, etc.

HUNTINGTON, W. VA.

The Leete-Maupin Engineering Co.

ENGINEERS

Civil Mining Municipal

Branch Offices

JACKSON, KY. WILLIAMSON, W. VA.

TOWN PLANNING

Real Estate Development along Sound

Economic and Artistic Lines a Specialty.

May We Serve You?

HOLMES BLAIR and BRENT S. DRANE

Late Div. Eng. Assoc. Mem. Am. Soc. C. E.

C. B. & Q. Rwy. Mem. Nat. Con. City Planning

1118 Realty Bldg., CHARLOTTE, N. C.

J. SPENCE HOWARD

Mem. Nat. Con. on City Planning.

Mem. Eng. Club of Baltimore.

Civil and Landscape Engineer

Makes a Specialty of Laying Out Suburban Properties

Designing Sewer Systems, Grades and

Drainage Plans for Same

BALTIMORE, MD

WALTER WILSON CROSBY

Member Am. Soc. C. E.

(formerly State Highway Engineer)

Consulting Engineer

532 North Howard St., Baltimore, Md.

P. O. KEILHOLTZ

Consulting Engineer

Continental Building BALTIMORE, MD.

Formerly Chief Engineer United Railways

& Electric Co. and Consolidated Gas, Electric

Light & Power Co. of Baltimore.

FROEHLING & ROBERTSON

RICHMOND TESTING LABORATORY

Chemists and Economic Geologists

Analysis of all kinds. Waters and ferti-

lizers specialties. Standard Cement Test-

ing Examinations and reports on mineral

properties.

2 N. 9th Street, RICHMOND, VA.

GEORGE C. DAVIS

Established 1900

Analyses of Iron, Steel, Ores, Alloys,

Coal, Sand, Clay and Cement

39 South Tenth St., PHILADELPHIA, PA.

THE GOULD COMPANY

Oil, Gas, Coal and Asphalt Properties. Metallic

and Non-metallic Properties in the Southwest.

Reports by Geological Engineer.

OKLAHOMA CITY, OKLA.

HARRY BURN

Analytical Chemist

Analysis of Ores, Fuels, Fluxes, Gases, etc.

1319 Third Avenue, BIRMINGHAM, ALA

Many Manufacturers' Problems are Chemical

W. N. BERKELEY, Ph.D.

(Johns Hopkins, 1899)

Consulting and Analytical Chemist

ANNAPOLIS, MD.

Specialties: Engineering Materials of All Kinds

Flue Gas, Boiler Water, Salt, etc.

DR. CHAS. F. McKENNA

Fulton Bldg., Hudson Terminal, 50 Church St.

NEW YORK CITY

CHEMIST AND CHEMICAL ENGINEERS

MATERIALS A SPECIALTY

PROCESSES, INSPECTION, REPORTS ON PROPERTIES

New York City 100 William St.

NICHOLAS S. HILL, JR.
Consulting Engineer.Water Supply and Sewage Disposal.
Evaluations and Reports.Laboratory for Analysis of Water
and Sewage and for Testing Cement,
Sands, Coal and Metals.

Steam and Hydraulic Power Plants.

IRWIN D. GROAK
ENGINEERING COMPANY
910 Monadnock Bldg., Chicago, Ill.Machinery designing, patents design and
install power plants and pump-
ing stations.**H. T. BROWN, M. E. E. E.**
Consulting and Contracting Engineer
Hydro-Electric Developments a Specialty
Eighteen years practical experience with General
Electric Co., Stone & Webster and
Williams Syndicate
700 Broadway, Nashville, Tenn.**T. G. Dabney, M. Am. Soc. C. E., Con. Eng.**
A. L. Dabney, M. Am. Soc. C. E., Chief, Eng.
THE DABNEY ENGINEERING CO.
81 Porter Building
Phone Main 4633. **MEMPHIS, TENN.**
Water Works, Sewers, Water and Sewerage
Purification, Electric Lighting Systems, Drain-
age, Levees, Dams.
Plans, Estimates, Reports, Appraisals.**W.S. BARSTOW & CO.**
INCORPORATED
CONSULTING and
CONSTRUCTION ENGINEERS
PUBLIC SERVICE PROPERTIES
FINANCED and MANAGED
50 Pine Street New York**JAMES C. LAWRENCE, Chemical Engineer**

Designs, Estimates, Inspections, Tests, Investigations

EXPERT IN FOREST PRODUCTS—Wood distillation plants; wood turpentine plants; steam and
destructive distillation projects; utilization of wastes, ashes, sawdust, etc.; wood preservation plants,
specifications and advice; wood pulp and paper mills; alcohol and other refining projects.
General chemical engineering work on plants and processes. Efficiency Engineering Problems.
Mail and Telegrams—Business Men's Club Bldg. - - - - MEMPHIS, TENN.**FOSTER-CREIGHTON-GOULD CO.**ENGINEERS AND GENERAL CONTRACTORS
NASHVILLE, TENNESSEESTEEL CONSTRUCTION AND ERECTION
ALL KINDS OF CONCRETE CONSTRUCTION
CRUSHED STONE AND "DARLINGTON" OOLITIC DIMENSION STONE**The J. B. McCrary Co.**
ENGINEERS ATLANTA, GA.**MUNICIPAL IMPROVEMENTS**Southern work only. Have built over half of the Water, Light and Sewer Systems
in Georgia and Alabama.

We Design—Finance—Superintend Bonds Purchased

SELDEN-BRECK CONSTRUCTION CO.
BUILDERS

ST. LOUIS

LOUISVILLE

OMAHA

Some of the work recently awarded us:
W. O. W. Building, Omaha, Neb., eighteen-story
fireproof; Inter-Southern Life Insurance Build-
ing, Louisville, Ky., eighteen-story fireproof.**H₂O**

Pure Water or Sterile Water

FROM ANY SOURCE, FOR MUNICIPAL
OR INDUSTRIAL SUPPLYContracts for complete pumping, filtration, sterilizing,
softening or iron removal plants. Hydraulic
concrete work.

TUCKER & LAXTON, - Charlotte, N. C.

HOWARD & COMPANY
INDUSTRIAL MINERALS **BROKERS** COTTON SEED PRODUCTSForeign and Domestic Fertilizer Materials. Import and Export Freight Contractors.
Custom House Brokers and Forwarding Agents.

Cables—DESPATCH

SAVANNAH, GA.

W. WALDO
ENGINEER

HOUSTON, TEXAS

EXAMINATION
AND
DEVELOPMENT
OF
TEXAS PROPERTIES

901-902 Union Nat. Bank Bldg.

Mem. Am. Chem. Soc. Soc. Chem. Industry

THOS. W. PRITCHARD

Chemical Engineer

WOOD DISTILLATION
WOOD PRESERVATION
Wilmington, N. C.**DERONDA LEVY**

Electrical Contractor

Complete Isolated Plants, Electric Light
and Power Wiring, Interior Telephone Sys-
tems.
Equipped to do work in any of Southern
States.

COLUMBUS, GEORGIA

FRANK P. DRANE, M. Sc.

Analytical and Consulting Chemist

CEMENT TESTING

According to the Am. Soc. C. E. Specifications.

CHEMICAL ANALYSES

Water and boiler compounds. Fertilizers, feedstuffs,
metals, alloys and cotton-seed mill products.

405 W. Trade St. Charlotte, N. C.

PATENTS

THAT PROTECT AND PAY

BOOKS, ADVICE AND SEARCHES FREE

Send sketch or model for search. Highest References.

Best Results. Promptness Assured.

Watson E. Coleman, Patent Lawyer

624 F. Street N. W. Washington, D. C.

Mill Architect and Engineer

SPECIALTY:

Textile Mills and Water Power Developments

J. E. SIRRINE GREENVILLE, S. C.**LOCKWOOD, GREENE & CO.**

Architects and Engineers for Industrial Plants

First National Bank Bldg.
CHICAGO, ILL.93 Federal Street
BOSTON, MASS.Southern Office
Rhodes Bldg., ATLANTA, GA.
29-2**STONE & WEBSTER ENGINEERING CORPORATION**

CONSTRUCTING ENGINEERS

NEW YORK

BOSTON

CHICAGO

J. G. WHITE & COMPANY

(Incorporated)

ENGINEERS—CONTRACTORS

43-49 Exchange Place, NEW YORK

First National Bank Bldg., Chicago

Alaska Commercial Bldg., San Francisco

London Correspondents: J. G. White & Co., Ltd., 9 Cloak Lane, Cannon Street, London, E. C.

Principal Philippine Office, Manila, P. I.

THE HYDRAULIC PROPERTIES COMPANY.

DAMS AND HYDRO-ELECTRIC POWER PLANTS

60 Broadway, New York.

WE FINANCE AND CONSTRUCT

We make loans, leases and construct all classes of

COMMERCIAL BUILDINGSWe also promote and finance all kinds of
legitimate enterprises.**GULF COAST CONSTRUCTION COMPANY**

DESIGNERS AND ENGINEERS

5th Floor Stewart Building

HOUSTON, TEX.

WE FINANCE AND ERECT

All Kinds of Commercial Buildings

We are in position to aid in financing any sound business enterprise
and to erect the building. Correspondence solicited.**FALLS CITY CONSTRUCTION COMPANY, Incorporated**
GENERAL CONTRACTORS

LOUISVILLE, KY.

FT. WORTH, TEX.

THE UNDERGROUND
CONSTRUCTION COMPANY

BANK OF COMMERCE BLDG., ST. LOUIS, MO.

WATERPROOF
FOUNDATIONSCORRUGATED
CONCRETE PILES**PATENTS**obtained in the United States and Foreign countries. Particular attention paid to claims.
Examinations and advice regarding novelty, scope, validity and infringement of patents.
Litigation conducted. Personal service. References on request.

GEO. R. HAMLIN, Attorney-at-Law, 805 H St., N. W., Washington, D. C.

TRADE-MARKS REGISTEREDIN THE UNITED STATES AND FOREIGN COUNTRIES. BEST SERVICE.
MODERATE FEES. TRADE RELATIONS ESTABLISHED ABROAD.
WRITE TODAY **BENNETT S. JONES.** PATENT AND
VICTOR BUILDING, TRADE-MARK ATTORNEY
WASHINGTON, D. C.

BUILDING CONSTRUCTION**PAVING****REFRIGERATION**

More contracts this year from more big people than any other contractor in Baltimore

We Are Coming South Now With Our Organization

If you are undertaking new work in any of the above lines, write us

THE CONSOLIDATED ENGINEERING CO., BALTIMORE, MD.

Engineers and Contractors

HAVEMEYER BARS WILL SAVE YOU MONEY BECAUSE "EVERY POUND PULLS"

Prompt mill shipment

Immediate stock shipments

CONCRETE STEEL COMPANY

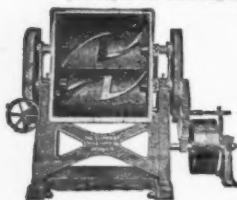
32 Broadway, New York

Monadnock Block, Chicago

70 Kilby Street, Boston

Lynn-Superior Mixing Machinery

Best designed and most efficient mixing principle for thoroughly mixing



"Cincinnati" Type.

Built with or without steam jacket for heated mixtures.

Full line Bakery Machinery.

THE LYNN-SUPERIOR CO. Cincinnati, O.

3256 Spring Grove Avenue

Dry Feeds,
Powdered
and Granular
Material.
Polish Powders,
Soaps,
Compounds,
Pastes,
Greases,
Sausage Meats,
Poultry and
Cattle Feeds.

Merchants & Miners Transportation Co.

VACATION TRIPS

"By Sea"

BALTIMORE

TO

BOSTON-PROVIDENCE

SAVANNAH-JACKSONVILLE

Through tickets to Northern and Southern points. Fine steamers; excellent service; low fares. Wireless telegraph.

Send for Booklet.

W. P. TURNER, P. T. M., BALTIMORE, MD.

REICHERT METAL FORMS

SAVE 3 CENTS per SQ. FT. on CONCRETE WALLS

Reichert Manufacturing Co., Milwaukee, Wis.

Proposals advertised in the Manufacturers Record bring good results.

Southern States Portland Cement

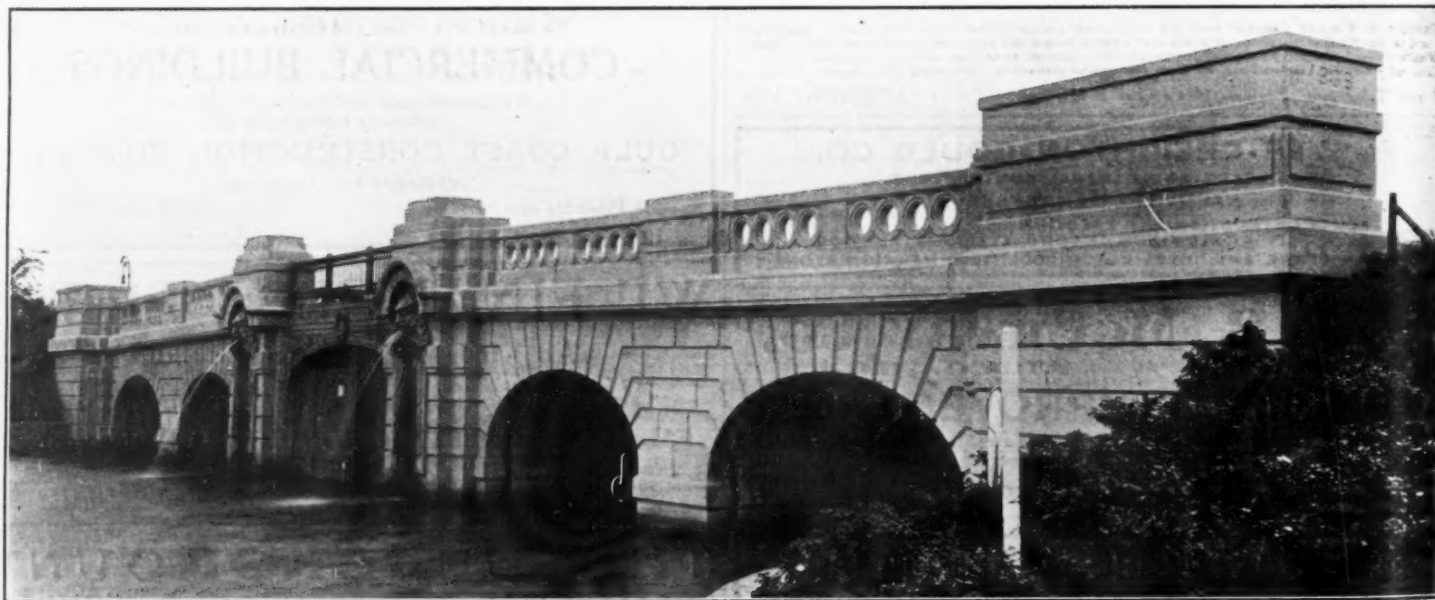
We produce only one grade—

THE HIGHEST

ALWAYS UNIFORM

Southern States Portland Cement Co.

Office and Mills—Rockmart, Ga.



TIDAL BASIN OUTLET BRIDGE, POTOMAC PARK, WASHINGTON, D. C.

This bridge is one of the finest examples of concrete work done in America. **BUILT EXCLUSIVELY OF OLD DOMINION PORTLAND CEMENT, MANUFACTURED BY THE VIRGINIA PORTLAND CEMENT CO., FORDWICK, VIRGINIA.**

1,000,000 barrels of OLD DOMINION PORTLAND CEMENT has been used in Government, Municipal and private work at Washington, D. C., during the past ten years.

If you are interested in getting the best concrete work, insist on it being made of OLD DOMINION PORTLAND CEMENT.

WM. G. HARTRANFT CEMENT CO.

SOLE SELLING AGENT

REAL ESTATE TRUST BUILDING

PHILADELPHIA, PENNA.

20TH CENTURY PRODUCTS

TIDEWATER PORTLAND CEMENT

Ground to a fineness of 85 per cent., passing the 200-mesh sieve. Every barrel of Tidewater Portland Cement contains 13½ per cent. more active cement than the standard ground brands. A barrel of "Tidewater" will go as far as 1½ barrels of other brands ground only to the standard degree of fineness.

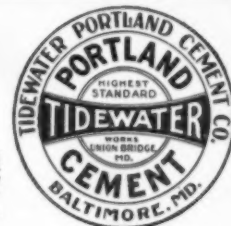


TIDEWATER HYDRATED LIME

Has proved a boon to the farmers of Maryland, Pennsylvania, Virginia and North Carolina, who have increased the yield of their soil 25 per cent. and decreased their lime bills 33½ per cent. by using Tidewater Hydrated Lime.

TIDEWATER PORTLAND CEMENT CO.

Sales Office: 807 Keyser Building, Baltimore, Md.



ROYAL

A Standard Portland Cement
of the Highest Grade

DAILY CAPACITY 6000 BARRELS

NO ORDER too large or too small

We guarantee

Absolute uniformity of product. Prompt Shipment at Short notice.
To meet the most exacting tests. To pass all standard specifications.

Let us quote prices.

DIXIE PORTLAND CEMENT CO.

Sales Office James Building, CHATTANOOGA, TENN.

There's true economy in using

"ALCA" LIME

A combination of Calcium Aluminate and Hydrated Lime.

Quick hardening, highly plastic, non-staining.
Prepared with or without hair. Makes the
best Mortars, Plasters and Stuccos.

Our Information Bureau is glad to give prompt and
courteous attention to all problems submitted. Write
or ask for interesting and instructive booklets.



SECURITY CEMENT & LIME CO.

812 Equitable Building, BALTIMORE, MD.

PITTSBURGH, PA.

WASHINGTON, D. C.

Standard

PORTLAND CEMENT

BEST FOR ALL USES

STANDARD PORTLAND CEMENT CO

SALES OFFICE - BIRMINGHAM - ALA
WORKS, LEEDS, ALA.



KOSMOS PORTLAND CEMENT

used in the most important engineering under-
takings because of its high quality. One
grade only. Prompt shipments. Let us quote.

Kosmos Portland Cement Co., Inc., Louisville, Ky.



LIMESTONE BRAND PORTLAND CEMENT

As fine as any on the market.
Guaranteed to pass all standard speci-
fications.

Used by the U. S. Government in their Ohio
River and tributaries work.

The Ironton Portland Cement Co.

IRON TON, OHIO.



Sand, Gravel, Lime and Cement

Daily capacity of our sand and gravel plants 4000
tons. Our 25 years' experience enables us to intelli-
gently take care of your requirements. We can han-
dle your orders anywhere in the South.

WE are MANUFACTURERS and PRODUCERS,
and not brokers. Get our prices B-4-U buy.

KIRKPATRICK SAND & CEMENT CO.
BIRMINGHAM, ALA.



Alpha Portland

The Recognized Standard American Brand

On the market for the past 20 years. One brand only
manufactured, a strictly straight Portland, which in
uniformity and general excellence cannot be excelled.

ALPHA PORTLAND CEMENT CO.

General Office—9 Centre Square, EASTON, PA.

Southern Office—National Bank Bldg.—Savannah, Ga.

Write for Our Handsomely Illustrated Book. Sent Free.

CLINCHFIELD

The Cement of Quality and Economy

contains less than 1½ per cent. Magnesia.

CAPACITY
DAILY



3000
BARRELS

Do you know of any other cement in the South that
runs as low in Magnesia as this? We do not.

Clinchfield Portland Cement Corp.

Office and Mills, KINGSPORT, TENN.

TO SOUTHERN CONTRACTORS

You want what you want when you want it. First, you want first-class equipment, that will do the work and stand the racket. Second, you generally want quick shipment; and telegraphic promises, car numbers, "strike" excuses, etc. do not constitute an acceptable substitute for *delivery*. Third, you want a fair price. The

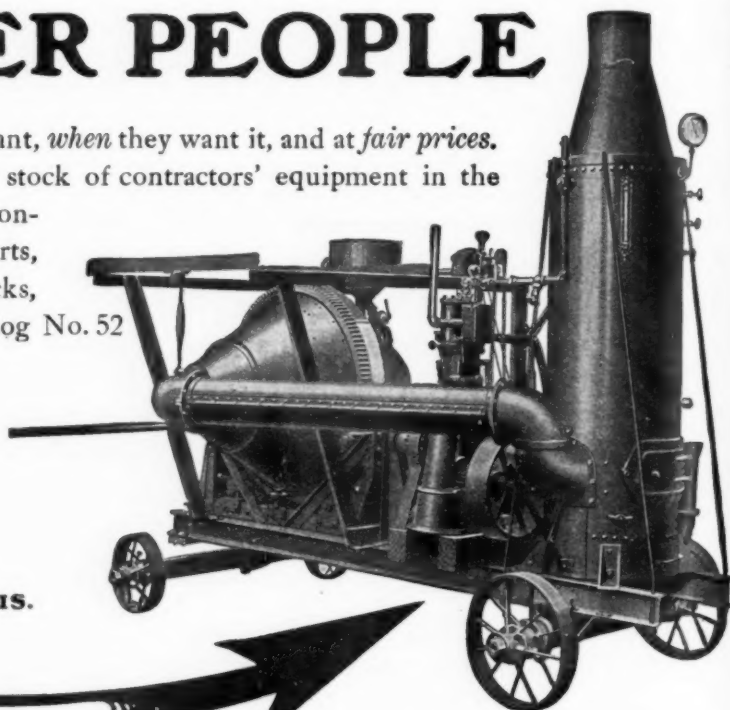
SMITH MIXER PEOPLE

are offering to Southern contractors, *what they want, when they want it, and at fair prices.* We have in our Atlanta warehouse the biggest stock of contractors' equipment in the South—concrete mixers (tilting and non-tilting), concrete elevators, concrete cars, wheelbarrows, carts, hoisting engines, pumps, portable saw rigs, derricks, etc., etc. Come and see us or write for our catalog No. 52

The T. L. Smith Co.

No. 5 Harwell Place,
ATLANTA, GA.

HOME OFFICE,
Majestic Building,
MILWAUKEE, WIS.



The Smith "Hot" Mixer for Handling Tar and Asphalt Macadam.

MORE THAN A THOUSAND

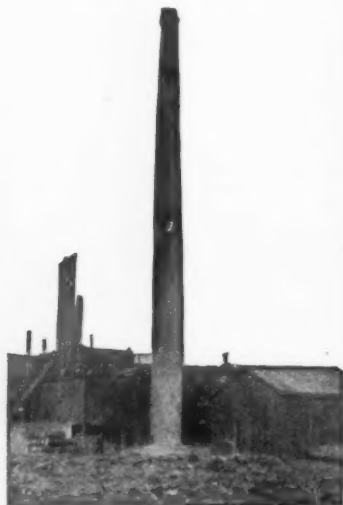
WEBER

REINFORCED CONCRETE

CHIMNEYS

IN USE EVERY DAY

CONIFORM AND
CYLINDRICAL SHAPES



WEBER CONIFORM CHIMNEY
Height 165'; Inside Diameter at top 6' 6"

Built for
E. P. Burton Lumber Co., Charleston, S. C.
Built by The Weber Chimney Co., Chicago

SEND FOR LITERATURE

The WEBER CHIMNEY CO.

1456 McCormick Bldg., CHICAGO
New York Office, 95-97 Liberty St.



"Ladies Friend" Water Power Washer

A Positive Reliable Machine—The Most Simple one Made.
Has No Gears—No Complicated Parts—Has but One Valve—
Requires No Oiling—A Signed Guarantee with each Machine.
Write for Particulars—A Good Proposition for the Dealer or Jobber.

The D. L. Bates & Bro. Co.

Dayton, Ohio

DIXIE BLUE PRINT CO., 317 Austell Bldg.

Atlanta, Ga.
Blue Prints, Blue Line, Brown or Black Line, Negatives,
Etc., of any size on either paper or cloth.

QUALITY, PROMPT SERVICE AND PRICES UNSURPASSED. CORRESPONDENCE INVITED.

IF

you have a contract anywhere in the South,
we can reach you.

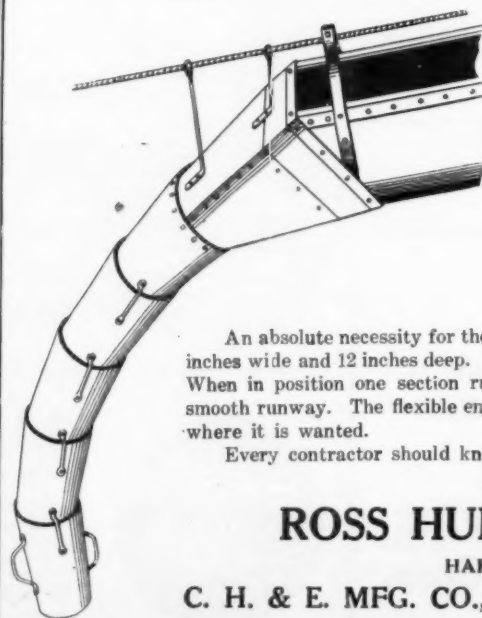
WASHED GRAVEL

(ALL SIZES)

C. P. LATHROP & CO., RICHMOND, VIRGINIA

Mississippi River Sand and Gravel

For RAILROAD BALLAST, GOOD ROADS,
BUILDING AND CONCRETE WORK.
This gravel can be delivered in barge load
lots, or on cars, at either the following places
on the Mississippi River: Hickman, Ky.;
New Madrid, Mo.; Caruthersville, Mo.; and
Memphis, Tenn. Gravel for concrete work,
screened and washed. Large orders solicited.
Address L. A. CARTER, 1469 Calhoun street,
New Orleans, La.



C. H. & E. Sectional CONCRETE CHUTE

For Handling and Chuting

CONCRETE

An absolute necessity for the economical handling of concrete. Each section 8 feet long, 10 inches wide and 12 inches deep. Made of 16-gauge steel reinforced with angle iron along top. When in position one section runs into the other, lapping 6 inches, making one continuous smooth runway. The flexible end chute (shown in cut) make it possible to pour concrete just where it is wanted.

Every contractor should know about this great time and money saver.

SEND FOR CATALOG TODAY

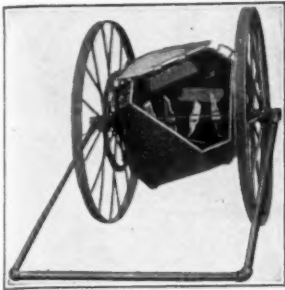
ROSS HUNTER, Southern Sales Agent

HARWELL PLACE, ATLANTA, GA.

C. H. & E. MFG. CO., Inc.

MILWAUKEE, WISC.

ARNOLD CONCRETE MIXER



A Hand Traction Mixer Completely Operated by Two Men

With the Arnold concrete is mixed while the materials are being wheeled from the stock piles to the forms

Mixes, Conveys and Deposits, All in One Operation

Full Information and Prices on Request

C. F. BLOUNT
Southern Sales Agent
ATLANTA, GA.

F. T. ARNOLD

244 William Street

New London, Conn.

Clough's Batch Concrete Mixer



Mixes 8 Cubic
Yards of Perfect
Concrete
per man per day.

Supplied ready to run. Fully
equipped, including 4 H. P.
gasoline engine of well-known
make.

MODERATE PRICE IMMEDIATE DELIVERY

Agents Wanted for Unoccupied Territory.

JOHN G. CLOUGH, 1798 Broadway, QUINCY, ILL.

FRANK A. FURST President COLIN McLEAN Vice-President MICHAEL T. HORNER Secretary JOSEPH J. HOCK Treas. & Gen'l Mgr.

Sand

Building Concrete Paving

Washed Gravel

In Car, Scow and Barge lots

ARUNDEL SAND AND GRAVEL CO.

BALTIMORE, MD.

OFFICE—806 Fidelity Building.

WHARVES—Pier 2 Pratt St. and Foot of Fell St.

To keep in touch with Southern Development, read the Manufacturers Record.



READ HOW ONE USER SAVED 20%

and does the work satisfactorily in every way. This is only one of the many letters we have from satisfied users of "MC" Concrete Mixers:

"Enclosed please find my check for the two 'MC' Rail Track Concrete Mixers which I purchased from you last month. I take pleasure in advising you that these machines are giving perfect satisfaction. I have used all the standard makes of mixers, and find I am putting in concrete with your machine 20% cheaper than I have ever done before. The machine is certainly speedy."

"MC" RAIL TRACK CONCRETE MIXERS

are durable and efficient. Designed and made by experts. Contain every known improvement, many found only in the "MC" Mixers. Mix fast and thorough. The drive gear is made of five interchangeable parts. This is a big advantage in case a tooth should break, one of the five parts can be replaced in a few minutes without disturbing any other part of the machine.

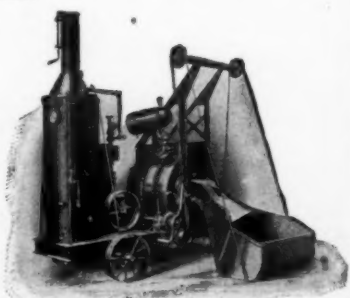
Our new catalog will tell you all the advantages of the "MC" Concrete Mixers.

Write for it today.

**Marsh-Capron
Mfg. Co.**

Main Office—481 Old Colony Building
CHICAGO

Eastern Offices—Harold L. Bond Co.
78 Beach St., NEW YORK
383 Atlantic Ave., BOSTON



Marsh-Capron Rail-Track Mixer with
Side Loader Grounded.

The ROSS Concrete Spade



No. 1.

**For Finishing Piers, Walls, Abutments, Etc.
A Great Time, Labor, Money Saver!**

Costs but \$2.50 (discount in lots of 1/2 doz. or more), but saves the contractor dollars daily. Every day you fail to use this spade you lose some cold cash. Scores of contractors testify to this. When used in finishing walls while the concrete is wet in the form, it forces the heavier particles back and brings the mortar to the surface—thus making a complete job with one operation.

The Ross Concrete Spade is also now made without offset for re-enforced concrete work with either short or long handle at same price. Specify kind wanted when ordering.

Ross Concrete Spade No. 1 (regular) D handle with offset.

Ross Concrete Spade No. 2 D handle without offset.

Ross Concrete Spade No. 3 (long) D handle without offset.

Write us today for sample spade or more facts. Use coupon attached.

HAROLD L. BOND COMPANY

383-S Atlantic Ave., Boston, Mass.

Charles F. Blount, Southern Agent, Atlanta, Georgia

Harold L. Bond Company,

383-S Atlantic Ave., Boston, Mass.

Please send me full details about the Ross Concrete Spade.

Name.....

Address.....

Automatic Regulation of Water Levels

We beg to announce that we have secured from the Stauwerke, A. G., of Zurich, Switzerland, the exclusive right in the United States and Canada to manufacture, sell and install the automatic flashboards and automatic siphons controlled by that Company. This is the first, and indeed the only practical success in the difficult field of the automatic control of water levels in rivers, canals, etc. The Stauwerke, A. G., has installed up to date some 27 plants in various parts of Europe, all of which are an unqualified success. These installations have attracted wide and favorable attention from engineers and are already known in the United States. In this country one installation having a total length of 260 ft. with a range of 6 ft. is now being installed on the dam of the Georgia Railway & Power Co., at Tallulah Falls, Georgia. We are to install a second installation having a length of 256 ft. with a range of 6 ft. on the reservoir dam of the same company on the Tallulah River, near Mathis, Georgia. Further installations aggregating a total length of something like 3000 ft. are now in process of negotiation in connection with Ambursen Dams in various parts of the country.

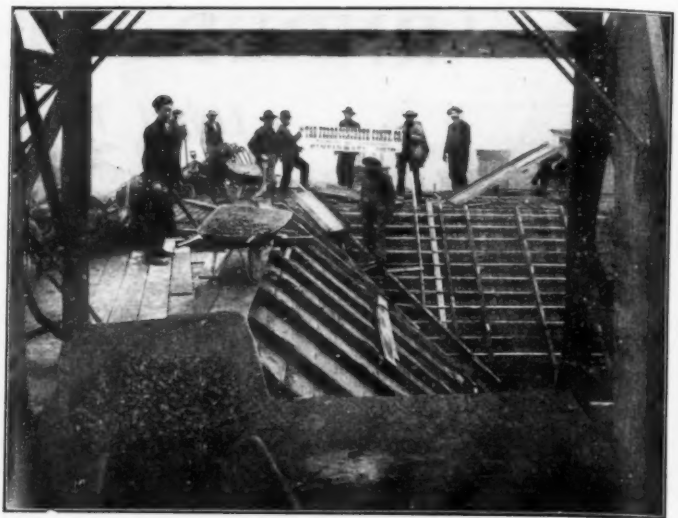
The policy of this Company in relation to the automatic flashboard does not limit its application to the Ambursen Dam. We are prepared to design and install flashboards on any type of dam and in connection with any other engineers or contractors. We will also design and install flashboards and siphons in connection with dams already built.

Descriptive matter is now in preparation and will be ready to issue in the fall. In the meantime all inquiry will receive our best attention.

Yours respectfully,

Ambursen Hydraulic Construction Co.
Engineer-Constructors

88 Pearl St., Boston, Mass.
111 Broadway, New York City, N. Y.



**YOUR WORK IS NOT
Too DIFFICULT
Too LARGE OR
Too COMPLICATED**

Write us for our figure. Our buildings in the South are numerous. Bulletins on request.

THE FERRO CONCRETE CONSTRUCTION CO.

CINCINNATI, O.

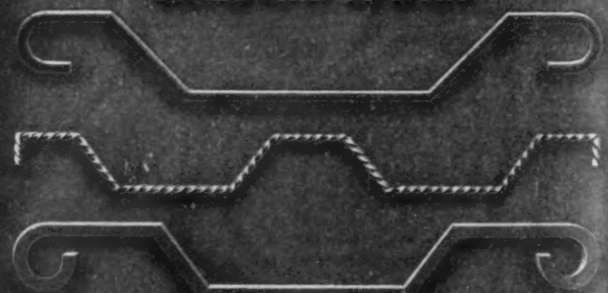
See Sweets Index, pages 224-225.

REINFORCING BARS

ROUND SQUARE TWISTED

BENT TO SPECIFICATIONS

SIZES 1/4 IN. TO 1 1/4 IN.



**BEAMS
STIRRUPS
SPIRALS
ETC.**

Franklin

FRANKLIN STEEL COMPANY

FRANKLIN, PENNSYLVANIA, U. S. A.

BUFFALO CLEVELAND PHILADELPHIA BOSTON
ERIE CO. BANK BLDG. 1330 ROCKEFELLER BLDG. REAL ESTATE TRUST BLDG. 12 PEARL ST.

THE ADVANTAGES OF A "CINCH" ARE MANY

The "CINCH" anchoring system has a guaranteed strength that is stronger than the bolt.

"CINCH" EXPANSION BOLTS

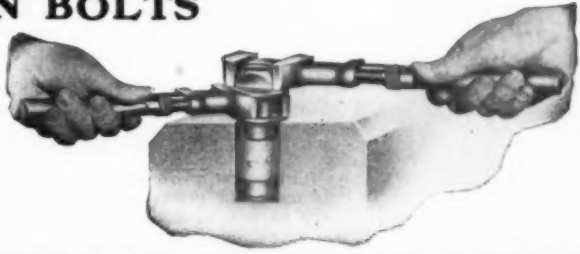
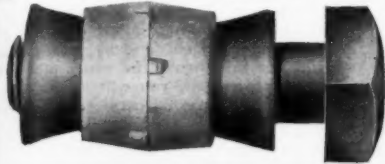
require a shallower hole than others. Can be used with either STUD or TAP bolt. Can be placed in masonry before work is put in place and nut applied later. Easy to install. Will not vibrate loose and are absolutely positive.

Our catalogue will tell you more about this wonderful system. Write for it today.

**CINCH EXPANSION BOLT
AND ENGINEERING CO.**

401 Broome Street

NEW YORK CITY



METAL LOCKERS KEIGHLEY METAL CEILING & MFG. CO.

PITTSBURGH, PA.

BALTIMORE, MD. OFFICE
No 7 N. SHARP ST.

WAINWRIGHT GALVANIZED STEEL CORNER BAR

"WAINWRIGHT PATENTS"

March 9, 1897
November 22, 1898
May 5, 1903
March 26, 1907
August 29, 1907
August 2, 1910

For Protecting Edges of Concrete Curbs, Steps, Columns, Etc.

IT HAS A RECORD OF FOURTEEN YEARS' USE WITHOUT A FAILURE

THIS BAR IS SELF-ANCHORING, THE DOVETAILED WEB HOLDING IT FIRMLY IN PLACE EVERY INCH OF ITS LENGTH, PRESENTING A RESISTING DEPTH OF TWO INCHES OF SOLID STEEL, AT EVERY POSSIBLE POINT OF IMPACT.

THIS BAR HAS BEEN IN PUBLIC USE FOR MORE THAN FOURTEEN YEARS AS THE MAIN FEATURE OF THE

WAINWRIGHT STEEL-BOUND CONCRETE CURB

ABSOLUTELY NON-BREAKABLE—CHEAPER THAN GRANITE.

OVER FOUR MILLION FEET IN USE IN MORE THAN FOUR HUNDRED CITIES IN THE UNITED STATES

THIS CURB WILL STAND HARDER USE AND LAST TEN TIMES AS LONG AS PLAIN CONCRETE CURBING CONTRACTORS can make money by laying this curb.

CITY ENGINEERS can save money by specifying it.

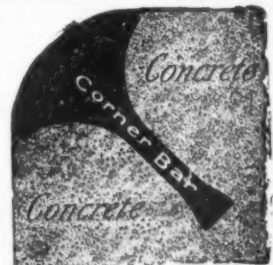
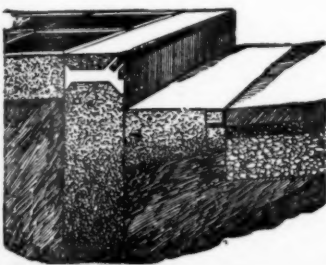
ARCHITECTS are invited to read pages 238-239 "Sweet's Index"

METAL PARTS FOR SALE

Send for Copyrighted Booklet, No. 7.

STEEL PROTECTED CONCRETE CO.

REAL ESTATE TRUST BLDG
PHILADELPHIA, PA.



Ceresitized Concrete and Cement Mortar are Uniformly Waterproof

The sure as well as the economical way to permanently waterproof concrete and cement mortar is to incorporate the water repellent in the mass as is done by the Ceresit method.

Ceresit is an integral waterproofing that permeates the entire mass uniformly whether the concrete wall be six inches or six feet thick, or whether the cement plaster coating be $\frac{1}{4}$ inch or 2 inches thick.

Ceresit is a cream white paste which is put into the water used in mixing concrete or cement mortar. The water carries the Ceresit into every portion of the mixture, and when set the entire mass is proof against water penetration.



Cribben & Sexton's Stove Foundry, Chicago. Boiler Pit Waterproofed with Ceresit

"Ceresit" Waterproofing

Is guaranteed as an effective, permanent water repellant for all sorts of concrete construction, such as tunnels, foundations, reservoirs, dams, swimming pools, viaducts, aqueducts, bridges, sewers, water tanks, water towers, cellars, walls, floors, boiler pits and roofs. Ceresit waterproofing is equally efficient as a dampproof and waterproof for cement mortar on concrete, brick, tile or stone; also on cement stucco and exterior finishes for residences.

Please write for Free Book "I" and try Ceresit waterproofing on your next job. Ceresit is used in all civilized countries.

Ceresit is catalogued in Sweet's Index.

Agents Wanted in Unoccupied Territory.

CERESIT WATERPROOFING CO., CHICAGO

Main Office: 82 W. Adams St.

Branches: 1133 Broadway, New York
1218 Chestnut St., Philadelphia

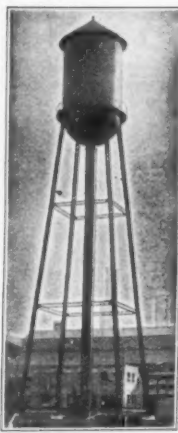
Ceresit Factories are located in Chicago; Unna, Westphalia, Germany; London; Paris; Vienna; St. Petersburg

PLEASE CUT OUT THIS

REMINDER

to write for book "I" on
WATERPROOFING to
Ceresit Waterproofing Co.
82 W. Adams St., CHICAGO

(20)



WATER TOWERS ALL OVER THE U. S.

Show the class of work we have been building for the past sixteen years for Water-works Plants, Railways and Sprinkler Systems.

We are the only extensive builders of Towers and Tanks having a *Factory in the PITTSBURG DISTRICT*

Consequently we are in the best position to make low prices on Eastern and Southern as well as Western business.

Write for Catalog No. 3.

DES MOINES BRIDGE & IRON CO.

DES MOINES, IA.
846 Tuttle St.

PITTSBURG, PA.
803 Curry Bldg.

Prestorian Building, DALLAS, TEXAS

LINCOLN PARK, N. Y.

"The Tanks with a Reputation"

CALDWELL TANKS and TOWERS

are the exponents of the highest type of construction from every standpoint. Durability and strength are manifest in their every line. No weight of tank carried has ever caused them to collapse. No gale has ever done them harm.

If you erect this outfit at your plant, you are assured of freedom from accident and repairs for all time. If you will but investigate the many plants in your vicinity having this outfit, you will take chances with no other. Ask for illustrated catalogue and book of photo views.

25 years' experience. We erect anywhere.

W. E. Caldwell Co., LOUISVILLE, KENTUCKY

INCORPORATED

Tanks { Steel-Wood } Towers
Wind Mills { Galvanized } Gas Engines

10

O. K. HARRY'S Sanitary Cistern for Health



Combination under and above ground. No seepage, no Typhoid, but pure, cool aerated water.

Write for further particulars,

O. K. HARRY STEEL CO.
2340-42 Papin St., ST. LOUIS, MO.

THE PETROLEUM IRON WORKS COMPANY

SHARON, PA.

Fabricators and Builders of Light and Heavy sheet metal Structures and Apparatus of any form or description—Tankage for all purposes—large or small—Oil Refinery Equipment—Stand Pipes—Water Towers—Smoke Stacks, guyed and self-supporting—Riveted Steel Pipe—Flumes—Penstocks—Blast Furnaces—Hot Metal Ladles—"Seigh" Patent Annealing Boxes—"Leman" Counter Current Condensers—"GEM" fuel oil burners—"Washington" Automatic Oil and Gas Separators—Portable Receiving Tanks—R. R. Water Service Tanks.

DOMESTIC AND FOREIGN
INQUIRIES SOLICITED

BRANCH
OFFICES:—

NEW YORK
ST. LOUIS
HOUSTON

Loading large shipment of 10' x 30' Single, Double and Triple Compartment Cylindrical Horizontal Oil Storage Tanks for Distributing Stations. These tanks may be supported on brick or concrete piers or by STRUCTURAL STEEL SUPPORTS as desired.

MACHINERY FOR Manufacturing SHEET METAL GOODS

Chas. Leffler & Co. 49-61 Clymer St., BROOKLYN, N. Y.

CHATTANOOGA BOILER & TANK CO. CHATTANOOGA, TENN. STANDPIPES, TOWERS and TANKS All Kinds of Plate and Sheet Iron Work.



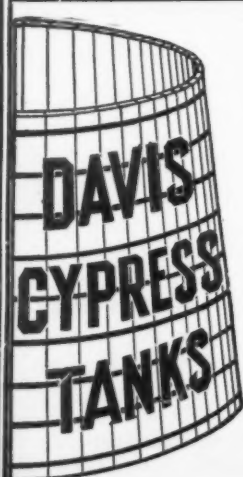
ELEVATED STEEL

TANKS TOWERS

Mechanically Correct in Design and Workmanship
Any Size, Erected Anywhere

Structural Iron Work Stand Pipes Boilers

R. D. COLE MFG. CO. - - NEWNAN, GA.



"Can't Leak and Won't Warp"

A Davismade Tank

is the combination of Cypress of the highest grade and twenty-five years' experience in our special line.

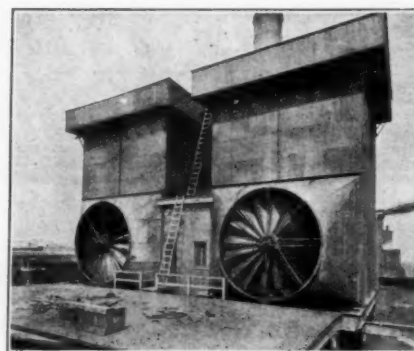
WRITE TO US.

G. M. DAVIS & SON

PALATKA, FLA.

ALL CLASSES OF STEEL PLATE WORK

Riveted
Pipe,
Storage
Tanks,
Stand
Pipes,
Boilers,
Stacks,
Ash and
Coal Bins
Sheet
Iron Work



We fabricate and erect in any part of the country.

Nothing but the highest grade workmanship and materials used in our products.

Prices cheerfully furnished.

Branch Offices
ROCKEFELLER BLDG.
CLEVELAND, O.

McALESTER,
OKLAHOMA

The Ruemmeli-Dawley Mfg. Co., St. Louis, Mo.

Angles
Bars—Beams
Boiler Fittings
Channels—Concrete Bars
Machinery Steel—Norway Iron

THE CINCINNATI IRON & STEEL CO.

CINCINNATI, O.

CISCO LED-KOTE FOR ROOFING

Rails—Rivets—Shafting—Tire
Sheets, Blue, Black, Planished
Tees—Tubes—Tool Steel
Turnbuckles
Tank Steel



*Most makers of cut nails
buy the plate in the open
market.*

In fact, we sell some of them
the plate ourselves.

Those who buy from us get
the best material for nails it is
possible to make.

La Belle Cut Nails

are made in our own factories, from
plates made in our own mills. Every
element, from the ore in the mine to
the finished nail in the bin, is La Belle
owned

That's how we can control their
their quality "from mine to market".

Write for catalog.

La Belle Iron Works

General Offices: Steubenville, O.

Works:
Steubenville, O.

Works:
Wheeling, W. Va.

OPEN HEARTH AND BESSEMER STEEL

"PIONEER"
PIG IRON

MERCHANT
BAR IRON

Billets, Blooms, Slabs, Sheet Bars,
Merchant Bars, Shapes, Skelp, Polished Shafting,
Spikes, Nuts, Bolts, Washers, Tie Rods, Twisted Squares

Merchant and Full Weight
Black and Galvanized

PIPE

Line Pipe, Drive Pipe
Tubing and Casing

Turnbuckles, Mine Rails, Splice Bars,
Old Rail Bars, Shapes, Special Sections

REPUBLIC IRON & STEEL CO.

GENERAL OFFICES: REPUBLIC BUILDING, YOUNGSTOWN, O.

SALES OFFICES:

BIRMINGHAM
CHICAGO

NEW YORK
ST. LOUIS

CLEVELAND
BUFFALO

CINCINNATI
PITTSBURG

SEATTLE
SAN FRANCISCO

Clifton and Etowah Pig Iron

In a Class by Themselves

Do not take our word for it. Read what is said of our Irons by a concern recognized as an authority on Pig Irons and Foundry Mixtures.

We quote extracts from letters received from Matthew Addy & Company to us:

"While in Birmingham the other day, and glancing over the analysis of the current make of Clifton and Etowah, I was surprised at the uniform high grade of the irons. There has never been a better iron turned out at the Clifton and Etowah stacks than has been turned out of late, and there is no iron in the Birmingham District that is superior at present to Etowah, with its good Manganese and Phosphorus well under 1 per cent.

"Of course, Clifton is in a Star Class all by itself."

Etowah Iron is sold on Fracture or Analysis grade—Phosphorus under 1 per cent., Manganese .50 and up, Silicon as desired, and Sulphur uniformly low—even in cold grades.

Clifton Iron is sold only on Analysis grading—with Phosphorus under .70, Manganese 1 per cent. to two per cent., Silicon as desired, low in Sulphur.

Try them and prove their merits.

Alabama Consolidated Coal and Iron Company

Birmingham, Alabama

Furnace
Foundry
Gas

} **Coke**

Lump
Washed Nut
Washed and Sized Smithing

} **Coal**

TENNESSEE COAL, IRON & RAILROAD COMPANY

PIG IRON

FOUNDRI—FORGE—BASIC

"DeBardeleben"

"Eureka"

"South Pittsburg"

"Ensley"

"Alice"

OPEN HEARTH STEEL

RAILS

BLOOMS

BILLETS

SLABS

STEEL BARS

SHEARED STEEL PLATES

ANGLES

COAL

COKE

STEAM GAS BLACKSMITH DOMESTIC

FURNACE

FOUNDRI

DOMESTIC

GENERAL OFFICES

Brown-Marx Building Birmingham, Alabama

DISTRICT SALES OFFICES

New York

Buffalo

Cincinnati

St. Paul

Philadelphia

Boston

St. Louis

Portland

Cleveland

New Orleans

Chicago

Detroit

Pittsburgh

Denver

San Francisco

Export Representatives: United States Steel Products Co., New York

Structural Steel and Ornamental Iron

For Architects, Contractors, Owners
Anything from a Bannister to a Bridge

No Proposition Too Large or Too Small For Us to Handle

WE are prepared to promptly supply your wants in any form of Iron Work at a minimum cost.

Structural Steel for Buildings, Bridges, Girders, Roofs, Motor Supports, Monorails, etc.

Ornamental Work consisting of Store Fronts, Elevator Doors and Enclosures, Stairs, Fire Escapes, Fences, Railings, etc.

Original Designs—Accuracy Workmanship—Promptness

Our work commended by leading Architects and Contractors.

A large tonnage of Beams, Channels, Plates and Angles, for immediate shipment, always in stock. Write for our stock list—it will tell you all about the various sizes and shapes.

Let us know your needs. We can satisfactorily supply them. Estimates freely furnished.

Chesapeake Iron Works, Baltimore, Md.

BELMONT IRON WORKS

PHILADELPHIA AND EDDYSTONE, PA.

STEEL BRIDGES AND BUILDINGS

We have just issued CATALOG of representative structures furnished by us. Engineers, architects and prospective purchasers please address DEPARTMENT "M"

NEW YORK OFFICE, 45 BROADWAY, NEW YORK CITY

STEEL BRIDGES AND STRUCTURAL WORK

We are Engineers, Designers
and Manufacturers

CONTRACTORS FOR

**Reinforced Concrete Bridges
and all classes of substructure**

AGENTS FOR

Corrugated Metal Culverts

*Highway and Municipal Bridge Work
a Specialty*

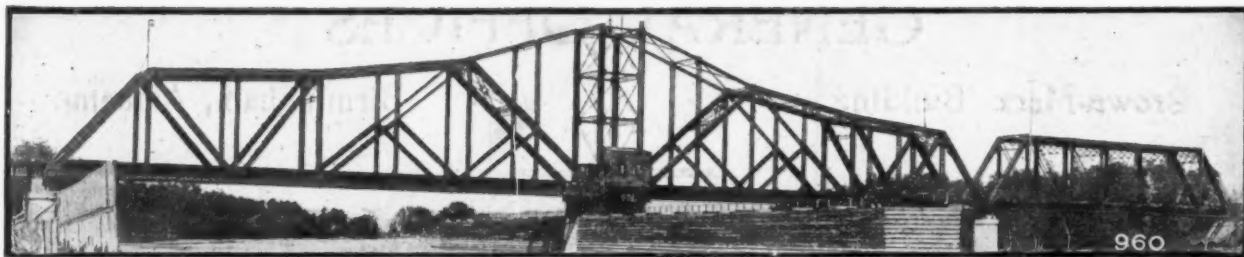
We have up-to-date bridge and
structural shops at Roanoke

Roanoke Bridge Co., Inc., Roanoke, Va.

BRANCH OFFICES:
ATLANTA, GA., JACKSONVILLE, FLA., CINCINNATI, OHIO, ROCK HILL, S. C.
Candler Bldg. Blum Bldg. 807 First Nat. Bk. Bldg. 307-8 People's Bk. Bldg.

AMERICAN BRIDGE COMPANY OF NEW YORK HUDSON TERMINAL-30 CHURCH STREET, NEW YORK

*Manufacturers of Steel Structures of all classes
particularly BRIDGES AND BUILDINGS*



Bridge Over Mississippi River at South St. Paul, Minn.

NEW YORK, N. Y. Hudson Terminal, 30 Church St.
Philadelphia, Pa. Pennsylvania Building
Boston, Mass. Oliver Building, 141 Milk St.
Baltimore, Md. Continental Trust Building
PITTSBURGH, PA. Prick Building
Rochester, N. Y. Powers Block
Buffalo, N. Y. Ellicott Square Building
Cincinnati, Ohio. Union Trust Building
Atlanta, Ga. Candler Building
Cleveland, Ohio. Rockefeller Building
Detroit, Mich. Beecher Ave. & M. C. R. R.

CHICAGO, ILL. Commercial Natl. Bank Building
St. Louis, Mo. Third National Bank Building
Denver, Colo. First National Bank Building
Salt Lake City, Utah. Dooley Block
Duluth, Minn. Sherwood Building
Minneapolis, Minn. 7th Ave. & 24 St., S. E.
Pacific Coast Representative:
United States Steel Products Co., Pacific Coast Dept.
SAN FRANCISCO, CAL. Rialto Building
Portland, Ore. Selling Building
Seattle, Wash. 4th Ave. So., Cor. Conn. St.

Export Representative: United States Steel Products Co., 30 Church St., New York

DIETRICH BROS.

Structural and Ornamental

IRON WORK

IRON and STEEL.


CUT, WIRE AND COATED NAILS

Reinforced Concrete Bars and Wire Mesh a Specialty

BALTIMORE, MD.

THE L. SCHREIBER & SONS CO.

CINCINNATI

STRUCTURAL STEEL  ORNAMENTAL IRON

BRANCH OFFICES
 NEW YORK CHICAGO PITTSBURG ATLANTA
 NEW ORLEANS SAN FRANCISCO RICHMOND

G. A. SPIESS ART GLASS CO.11th Street and Clark Avenue
ST. LOUIS, MO.Makers of Art Glass, Beveled Plates
in Lead or Metal, Tile Prisms, Zinc or
Copper, Church & Memorial Windows.**Wire Stapling Machinery**For Fruit Packages, Baskets, Crates,
Barrels, Butter Dishes, Boxes, etc.
Corrugated Joint Fastener Driving
Machinery.SARANAC MACHINE CO
ST. JOSEPH, MICH., U. S. A.**The Cutler Mail Chute**A recognized necessity in modern
buildings of the office, hotel and
apartment class.The safe and prompt dispatch of
mail from the upper stories of such
buildings where it originates, is now
of first importance.Send for circulars and full informa-
tion to the sole makers under the
Cutler patents.CUTLER MAIL CHUTE CO.
ROCHESTER, N. Y.**Your Products Exhibited**in the
BUILDERS' EXCHANGE
Baltimore, Md.Will give you results in actual business.
Exhibits on ground floor.
Write for information.

York Bridge Company
BRIDGES, STRUCTURAL WORK
 YORK, PA.

H. V. BROCKMANN, Southern Agent

CHARLOTTE, N. C.

BRIDGES, MILL BUILDINGS, COAL TIPPERS
FARRIS BRIDGE CO.

PITTSBURGH, PA.

CHARLESTON, W. VA.

SCHERZER ROLLING LIFT BRIDGESFulfill Every Modern Requirement of a Movable Bridge and are Replacing Swing
Bridges in this Country and A'road. Write us for information, sketches and estimates.

THE SCHERZER ROLLING LIFT BRIDGE CO.

Cable Address "Scherzer," Chicago. Main Office, 1616 Monadnock Block, Chicago, U. S. A.

CHAMPION BRIDGE COMPANY
 WILMINGTON, OHIO

MANUFACTURERS OF

Bridges and Structural Work
 Southern Office—Atlanta, Ga.

Southern Office
Continental Trust Bldg.
Baltimore, Md.Southwestern Office
Hibernia Bank Bldg.
New Orleans, La.Western Office
Pierce Bldg.
St. Louis, Mo.**PHOENIX IRON CO.**

PROMPT SHIPMENTS ON

STRUCTURAL STEEL SHAPES

FROM OUR MILLS OR FROM OUR LARGE STOCK

DESIGNS AND ESTIMATES FOR

ALL KINDS OF STEEL STRUCTURES

DELAY ELIMINATED

Works, Phoenixville, Pa. Main Office, 410 Walnut St., Philadelphia, Pa.

Other Local Offices: 110 State St., Boston, Mass.
49 William St., New York.**VINCENNES BRIDGE CO.**

BRIDGES, STRUCTURAL WORK

VINCENNES, IND.

Memphis, Tenn. Address nearest office. Muskogee, Okla.

Capacity 100,000 Tons per Annum

STRUCTURAL STEEL

FOR

BRIDGES, BUILDINGS
GIRDERS, ROOFS

LARGE STOCK

PROMPT SERVICE

**VIRGINIA BRIDGE
& IRON CO.**

General Offices—Roanoke, Va.

Contracting Offices: Memphis, Tenn.
Atlanta, Ga.
New Orleans, La.Works: Roanoke.
Memphis.
Atlanta.ESTABLISHED 1878
BINSWANGER & CO.
(INCORPORATED)WINDOW
PLATE
ART **GLASS** MIRRORS
BEVELING
SKYLIGHT
Richmond, Va. Memphis, Tenn.

Aluminum Company of America

PITTSBURGH, PA.

ALUMINUMElectric Conductors, Ingots, Bars, Plates,
Castings, Tubes, Sheets, Etc.**THE HOTEL****ESSEX**

Opposite South Terminal Station.

BOSTON, MASS.European Plan.
Rates Moderate.
Absolutely Fireproof.
Free Transfer Baggage from and to Sta-
tion.
Terminal of Trains from South and West.
Also Plaza Hotel, N. Y.**THE HAMMOND HOTELS**

F. A. HAMMOND, President.

**HAROLD McCALLA
IRON AND STEEL**

OF EVERY DESCRIPTION

Plain and Galvanized Bars, Hoops, Bands, Angles, Channels, Tees, Plates, Sheets
and Wire. Cut Nails, Plain and Galvanized; Wire Nails, Plain, Coated
and Galvanized; Barb and Twisted Wire, Painted and Gal-
vanized. Hand Power Punches and Shears.

SHIPMENTS FROM STOCK OR MILL

Large Stock of Galvanized Bars, Bands, Hoops, Shapes, Etc.

444-446-448 Fairmount Ave.

PHILADELPHIA

Patterson Blocks are the Best.

Wood Blocks for Manila Rope
 Steel Blocks for Wire Cable

All Hooks hand-forged from staybolt iron and flattened.
all Sheaves self-lubricating.

Write for Block Catalogue No. 2.

W. W. PATTERSON CO.

EXPERT TACKLE BLOCK MANUFACTURERS

57 Water St.,

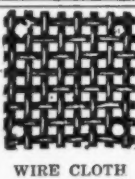
PITTSBURGH, PA.





ESTABLISHED 1835.
DUFUR & Co.

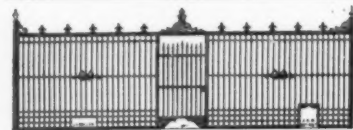
309 N. Howard St.
BALTIMORE, MD.
WIRE RAILING, WIRE AND IRON GRILLE WORK, BANK AND
OFFICE PARTITIONS, RAILINGS, GRILLES, ETC. WIRE CLOTH
WINDOW GUARDS, STORE FRONT GUARDS, ETC. **Write for Catalog**



DUFUR, BAGGOTT & CO.

BRASS AND STEEL WIRE WORK

Of Every Description Absolute Prompt Delivery
BANK WORK ELEVATOR ENCLOSURES ELEVATOR CABS COUNTER RAILINGS GRILLES
WICKETS GUARDS PARTITIONS SKYLIGHT PROTECTORS, ETC.
225 W. Saratoga St. Baltimore, Md



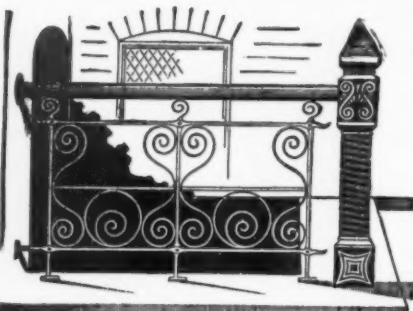
Write for Catalogue M-27 State your wants

We are Manufacturers
BANK AND OFFICE RAILINGS
Plain and Ornamental Iron Work
of all Descriptions
J. E. Bolles Iron & Wire Works
DETROIT, MICH.

SOUTHERN WIRE & IRON MFG. CO.

DALLAS, TEXAS

Elevator Enclosures, Iron Grilles, Fire Escapes, Counter and Balcony
Railings, Iron and Wire Guards, Wire Signs.



RAILINGS

OF ALL KINDS
Elevator Enclosures and Cabs
Bank Work, Iron and Wire Guards,
Miscellaneous
ORNAMENTAL IRON
AND
BUILDERS' IRON WORK
100-page catalog free on request if you
mention the Manufacturers Record.
DOW WIRE & IRON WORKS
LOUISVILLE, KY.

McKENNA

PITTSBURGH



Our Display Fixture De-
partment has a catalog of
"Neat-Nifty" Fixtures.

WRITE

Two important items are foundation
stones of every manufacturer

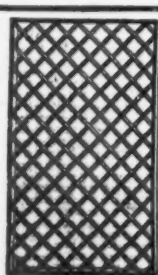
"QUALITY"—"DELIVERY"

We have the largest plant for the
manufacture of Brass and Bronze
Railings, Grilles and Structural
Brass Work in the Pittsburgh Dis-
trict. Therefore our cost of produc-
tion is the minimum.

GIVE US AN OPPORTUNITY TO QUOTE

McKenna Bros. Brass Co.
PITTSBURGH, PA.

CHATTANOOGA IRON & WIRE WORKS
CHATTANOOGA, TENN.
IRON AND WIRE GUARDS
FIRE ESCAPES SKYLIGHTS
BANK GRILLING IRON FENCE AWNINGS



INSURE

Against Burglars
and Breakage of
Glass by using
our
WINDOW GUARDS
The cost is small.
We also manufacture
Bank and Office
Railing, Elevator
Cabs and Enclo-
sures, Fire Es-
capes.

The Fred. J. Meyers Mfg. Co., Hamilton, O.

RICHARD G. WOOD, President.

J. R. Jones, Vice-Pres. and Treas.

W. W. LUKENS, Sec. and Asst. Treas.

Alan Wood Iron and Steel Company

ESTABLISHED 1826

1421 CHESTNUT STREET - - - PHILADELPHIA

MANUFACTURERS OF

Basic Open Hearth Steel Billets, Blooms, Slabs, Sheet Bars, Universal
Mill Plates, and Black and Galvanized Iron and Steel Sheets and Plates

—SPECIALTIES—

Locomotive Jacket, Blue Annealed, Bath Boiler, Swede and Norway Sheets, Gas Holder, Corrugated, Best Bloom, A. W. clean,
M. F. Cold Rolled Sheets, Pickled and Cold Rolled Sheets, Electrical Iron and Steel, Best Last, Water Pipe and Light Plates,
"A. W. DIAMOND" and "A. W. RIBBED" PATTERN ROLLED STEEL FLOOR PLATES. Sizes furnished on application.

Snead Architectural Iron Works
LOUISVILLE, KY.
STRUCTURAL STEEL **ORNAMENTAL IRON**

Architects, Contractors, Builders

To meet in price the competition of inferior plugs
recently put on the market, we offer our

NIAGARA JUNIOR

It is in every way excellent, made after the same
fashion, with the same material and workmanship,
as our regular plug. The plug measures 2-3/4"x2-1/4".
Sample to any one interested.

NIAGARA FALLS METAL STAMPING WORKS

Manufacturers of Hardware Specialties

NIAGARA FALLS, N. Y., U. S. A.

Wall and Veneer Ties, 12" Tie for Concrete Block Walls, Sash Pul-
leys, Sash Fixtures, Premax Sash Chain, Embossed Metal
Letters and Figures. 87A

Try this for 30 days, FREE
THE IXL FLUSH TANK REGULATOR



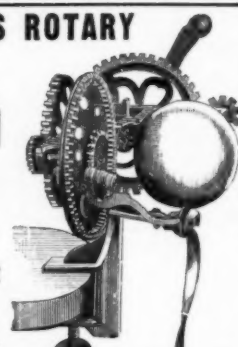
will save 3/4 the
water used by
Automatic
Sewer Flush
Tanks.
Stream always
uniform and
always under
control.
It will easily
pay for itself,
and we invite
correspondence

MODERN IRON WORKS CO., QUINCY, ILL.
Southern Sales Agent—C. F. Blount, 522 Grant Bldg.
Atlanta, Ga.

SCOTT'S ROTARY

KNIFE
Peach
Parer

The
Sinclair-Scott
Company
Baltimore, Md.



THE COAST LINE
TO
MACKINAC
DETROIT CLEVELAND
BUFFALO NIAGARA FALLS ALPENA STIGNACE
PT. HURON
GODERICH
TOLEDO
THE CHARM OF SUMMER SEAS
Spend your vacation on the Great
Lakes, the most economical and
enjoyable outing in America.
Where You Can Go
Daily service is operated between
Detroit and Cleveland, Detroit and
Buffalo; four trips weekly between
Toledo, Detroit, Mackinac Island and
way ports; daily service between
Toledo, Cleveland and Put-in-Bay.
A Cleveland to Mackinac special
steamer will be operated two trips
weekly from June 15th to September
10th, stopping only at Detroit every
trip and Goderich, Ont., every other
trip. Special Day Trips Between
Detroit and Cleveland During July
and August.—Railroad Tickets Avail-
able on Steamers.—Send 2 cent stamp
for illustrated Pamphlet and Great
Lakes Map. Address:
L. G. Lewis, G. P. A., Detroit, Mich.
Philip H. McMillan, President
A. A. Schantz, General Manager
Detroit and Cleveland Nav. Co.



THE NEWMAN MFG. CO. ESTABLISHED 1882 717-719 Sycamore St. Cincinnati, Ohio

BRASS WORK

For Theatres, Churches, Offices, etc.

Hand Rails, Push Plates, Kick Plates
Grilles, Frames, Easels

WINDOW DISPLAY FIXTURES

High-Class Workmanship. Low Prices

Wickets, Grilles, Railings, Money Guards, Signs, Cashier Cages,
Tubular Brass Railings
BRONZE, IRON AND WIRE WORK
THE CINCINNATI MFG. CO.
1243-1249 W. 6th Ave., CINCINNATI, OHIO

Streeter Patent Clips and Special Connections for Steel Buildings



For prices: send required size and position of connecting sections to

Streeter Clip & Specialty Company

(Incorporated)

4101-4105 East Ravenswood Park - - - - - Chicago

Specialty: P. O., School Houses and all Public Buildings

HEATING, VENTILATING, SPRINKLING COMPLETE ELECTRICAL INSTALLATIONS WASTE CLEANING MACHINERY

AMERICAN MACHINE & MFG. CO.

Machinists, Contracting Engineers, Founders

Office and Works, - - - - - CHARLOTTE, N. C.

OUR FIRE DOORS, SHUTTERS and HARDWARE

have the confidence and approval of ALL INSURANCE AUTHORITIES



WHY?

Because they inspect our factory, see them made and know that we use only the best of materials.



Door Label

Hardware Label

VICTOR MANUFACTURING CO.

NEWBURYPORT, MASS.

F. H. Jackson, 7 Clay St., Baltimore, Md.

THE PROOF OF PULLMAN EFFICIENCY



This letter speaks for itself. We can add nothing which would make it more convincing. We have a number of others on file.

NEW YORK WIRE CLOTH COMPANY

New York, March 30, 1912

Gentlemen:--Your favor of the 28th inst. received. As you state, we have several of your large size Pullman Cowis in use and would be pleased to give you our opinion in regard to them.

Your Cowis are used under much more severe conditions than two other makes of Cowis that we have and we have no hesitancy in stating that yours are superior in every way. Two of your Cowis, in fact, are being used eleven hours in the day over large vats of heated chemicals, completely exhausting all vapors and odors and doing the work in such a thorough manner that no assistance from a fan or blast of any kind is required, although the condition of the work put upon them is such that we expected to be obliged to use a fan, in assisting, when the Cowis were installed.

As previously stated, in any case that we can conceive of, where a roof ventilator is to be used, we certainly cannot see why this particular pattern will not do the work and do it well.

NEW YORK WIRE CLOTH CO.

F. R. Alvord, Manager.



Pullman Cowi

THE PULLMAN AUTOMATIC VENTILATOR MFG. CO.

YORK, PA.

METAL WINDOWS

OF ALL KINDS AND FOR ALL USES

Tested and Approved by Underwriters Laboratories

VOIGTMANN & COMPANY

CHICAGO, 445-459 W. Erie Street

Southern Representative—S. R. HEWITT, 1202 Candler Bldg., Atlanta, Ga.

Send for Catalogue



BANKERS TRUST CO. BLDG., NEW YORK

Marc Eidlitz & Sons, Contractors

Trowbridge & Livingston, Architects

The Dahlstrom Products in the Bankers Trust Building

"Throughout the building the time-worn combustible idea of trim has been completely obviated. This structure is essentially fireproof, for not a particle of inflammable trim is to be found in it."

"This is another installation of the Dahlstrom Products which can be truthfully given credit for making the first totally fireproof building. Certainly no concern has been more responsible in bringing about the ideal fireproof building than has the Dahlstrom Metallic Door Co."

—Architecture for May

Dahlstrom Metallic Door Company

Executive Offices and Factories, 73 Blackstone Avenue, Jamestown, New York

Branch Offices in All Principal Cities



"MIAMI" VENTILATORS



Manufactured from Rust Resisting American Ingot Iron because it's the most durable and resistant to corrosion of any iron obtainable.

The "Miami" Ventilator

Is absolutely weather-proof, and there is always an upward draft because of their peculiar and scientific construction.

The "Miami" Ventilator will automatically exhaust hot and foul air, disease germs, gas, smoke and steam, in greater volume than any other of same diameter. It's an inspiration for smoky chimneys. No back draft, simple in construction, very strong and substantial.

When fitted with an automatic closing device the temperature of the room is easily regulated. The closing device has a vertical motion only, requires no attention after regulating, and can be arranged to automatically close in case of fire.

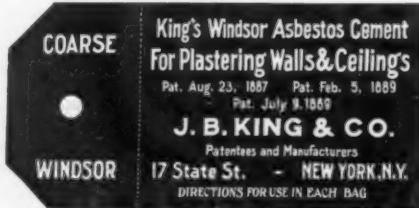
Manufactured only by

The Dixie Culvert & Metal Co.

ATLANTA

GEORGIA

These Labels on Plaster Products Mean Best Quality



A practical fire resisting substitute for wood and metal lath for interior walls and ceilings, a non-conductor of sound, heat and cold. Composed of Nova Scotia gypsum and fibre compressed into a solid fibrous sheet reinforced on both sides with specially prepared felt.

A perfected plastering material composed of calcined plaster manufactured from the finest quality of selected gypsum rock imported from Nova Scotia, incorporated with the correct proportion of other high-grade plastic ingredients, asbestos fibre, etc. It saves time. It saves space. It does not chip nor pit.

A cool working, exceptionally strong and white finishing plaster, which for the past thirty years has been the standard of America.

J. B. KING & CO., New York

SOUTHERN BRANCH { **JONES & CO., Inc.**
NORFOLK, VA.

Warehouses: Charleston

Savannah

Brunswick

Wilmington



Commercial National Bank
Raleigh, N. C.

P. T. Marye Architect
Jno. T. Wilson & Co., Inc. Builders
Gray Atlanta Terra Cotta

Atlanta Terra Cotta Construction

THE initial cost of Atlanta Terra Cotta may win the contract for you. You can be sure that Atlanta service will keep construction expenses down to the minimum.

Atlanta Service means that the Terra Cotta will reach the building *on time* and ready to be set as rapidly as it can be handled.

Atlanta Terra Cotta Company
514 Third National Bank Bldg., Atlanta, Ga.

Largest Architectural Terra Cotta Factory in the South. East Point, 6 miles from Atlanta.

Atlanta
Dallas
Norfolk
Richmond

Booklet on request

New Orleans
Charlotte, N. C.
Oklahoma City

Original Artistic Terra-Cotta

When you want something original and artistic in ornamental terra-cotta, come to us. We employ only expert modelers, molders and draftsmen. Largest plant in the South.

The Maryland Terra-Cotta Co.

Wicomico and Clare Sts., BALTIMORE, MD.

OCONEE BRICK & TILE COMPANY

MANUFACTURERS OF CLAY PRODUCTS

MILLEDGEVILLE, GA.

Fireproofing, Building Tile, Flue Lining, Stove Flue Pipe and Tops, Thimbles, Wall Partition Tile, Farm Drain Tile, Fire Brick and Clay, Face and Common Building Brick, Sewer Pipe, Wall Coping, etc. CORRESPONDENCE SOLICITED.

DAGOSTIN & ANGELINI BROS.

MOSAIC and TILE WORK

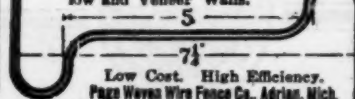
Decorative Roman, Venetian Terrazzo and Ceramic Mosaics and Interior Marble Work. Cement Flooring.

Home Office—744 Hull St., Montgomery, Ala.

201 Marietta St., Atlanta, Ga.

PAGE WALL TIES

An Ideal Bond for Face Brick, Hollow and Veneer Walls.



Low Cost. High Efficiency.
Page Woven Wire Fence Co., Adrian, Mich.

Building Material

Pressed Brick (all colors). Ornamental Terra Cotta, Metal Lath, Corner Bead, Plaster, Fireproof Windows and Doors, Tile, Iron, Steel, Paint and material of all kinds. Write for Samples and Prices.

Southern Building Material Co., Norfolk, Va.

B. Mifflin Hood Brick Co.

ATLANTA, GEORGIA

Desire for the artistic has stimulated the brick industry of the country. In this the South has not been backward.

The demand has been met by our popular Hood's Orientals of a rough texture and Hood's Old English of a semi-rough texture.

The combination of Shale rough texture brick of rich, harmonious colors, mortar and design, produce as beautiful wall effects as can be woven into tapestry and rugs.

We strive to deliver anywhere in the South the best value at the lowest price.

Don't forget our Press and Impervious Flashed Brick.

Always specify the highest standard, **HOOD'S SHALE BRICK.**

Write for samples.

B. MIFFLIN HOOD BRICK CO.

BUILDINGS HAVE CHARACTER

Same as man. But clothe them with a crude exterior and neither is pleasing.



The aim of the architect is best revealed when the outward appearance is in harmony with the plan. This is best secured by the use of

HYDRAULIC-PRESS BRICK

Thousands of handsome buildings, public and private, in all parts of the country, owe their distinguished appearance to the use of our product. Insist on getting it.

Meantime write for booklet.

HYDRAULIC-PRESS BRICK CO., Central Nat'l. Bank Bldg., ST. LOUIS, MO.
Colorado Bldg., WASHINGTON, D. C.
Address nearest office.

BRICK TALKS

No. 4—The Charm of a Brick House.

A good Brick House gathers charm with age.

A frame house soon begins to look "shabby;" the paint blisters and grows dingy; the porch settles; the steps grow shaky; the sills rot; the house "totters with age."

Not so with the House of Brick. It never blisters, settles or rots. It stands erect, firm and unshaken as the years roll by; it defies the elements; the walls mellow and soften in color; the ivy creeps over the surface; the house blends with the trees, the flowers, the green grass around it. It seems to be a part of Nature's own handiwork. It takes on a charming old age.

A Brick House never looks "old." Some of England's brick houses were built over 300 years ago, yet they are more beautiful today than ever.

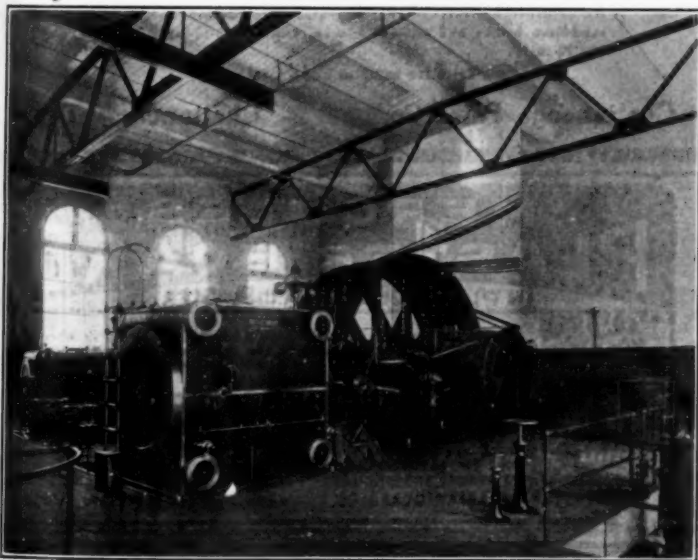
When You Build Use Sibley-Menge Brick.

SIBLEY-MENGE BRICK & COAL CO.

842-3-4-5 Brown-Marx Bldg., Birmingham, Ala.

MANUFACTURERS AND SHIPPERS

Buy the Best to Boost Your Business



Monomac Cotton Mills, South Lawrence, Massachusetts.
B. F. Smith Construction Co., Engineers. C. R. Makepiece & Co., Architects.

122,000 "American" Enameled Brick

English Size White and Green used for interior lining.

WRITE FOR INFORMATION.

American Enameled Brick & Tile Co.
1182 Broadway, New York City

Foster Line of Kittanning Grays and Buffs

We make a specialty of furnishing large operations and of serving the largest contractors of the country. We furnished the brick for the Woodman of the World Building in Omaha, Neb., for the Times Building, New York City, for the City National Bank of Omaha, for the Col. Gibbs Building, San Antonio, for the Wagner and the Ellison Residences, Fort Worth, Tex., and for many other fine residences, and for large and representative buildings in various parts of the country.

We are looking for reliable representatives.

If your line is not complete, write us.

Kittanning Clay Products Company

Main Office—Bradford, Pennsylvania

TRADE-MARK
Tapestry Brick
REG'D U.S. PAT. OFF.

The Most Artistic and Permanent Building Material in the World.

Color Illustrated Books Free.

Refer to our large advertisement back cover of this paper of June 13.

FISKE & CO., Inc.

Promoters and Designers of Artistic Brickwork,
Sole Manufacturers of "Tapestry" Brick.

1720 Arena Building, NEW YORK

Brookhaven Pressed Brick & Mfg. Co.
BROOKHAVEN, MISS.

FINEST FACE BRICK
All Colors Prices Right

ALEX. A. SCOTT BRICK CO.

Manufacturers of

BUILDING BRICK

519½ Prince St., KNOXVILLE, TENN.

The "Tinner's Terne"

For Better Business

To obtain best results—specify and insist
upon having

COPPER BEARING Open Hearth Roofing Tin

Manufactured exclusively by this Company.

American Sheet and Tin Plate Company

General Offices: Frick Building, Pittsburgh, Pa.

DISTRICT SALES OFFICES

Chicago Cincinnati Denver Detroit New Orleans New York Philadelphia Pittsburgh St. Louis
Export Representatives: UNITED STATES STEEL PRODUCTS COMPANY, New York City
Pacific Coast Representatives: UNITED STATES STEEL PRODUCTS COMPANY, Los Angeles, Portland, San Francisco, Seattle

Nickerson Patent Double Lock Joint

COLUMNS

Porch Interior Pergola

BUILT TO STAY
and
ARCHITECTURALLY CORRECT

OUR HOBBY—First-class Columns at Right Prices. Send list of your needs and let us quote you prices.

BOOKLET FREE
Our Factory is the Home of Good Columns

NICKERSON MANUFACTURING CO.
KNOXVILLE, TENN.



Eclipse Mortar Colors

Our Mortar Colors (red, brown, buff and black) are the strongest and most economical on the market. They will do twice the service of other Mortar Colors. We also manufacture coloring for sand-lime bricks and cement blocks, and are shipping it all over the country.

Write for samples and quotations.

Chattanooga Paint Co.

Chattanooga, Tenn.

HERCULES PLASTER BOARD

IN PLACE OF LATHS AND PLASTER



Saves money in material, time and labor. Made in sheets 32x36 inches. Easily nailed to the studs and is at once ready for paint, paper, burlap, or a plaster finish.

WALL PERFECTION

Will not shrink, warp or crack. Shows no lath stains. Proof against FIRE, SOUND, VERMIN, HEAT and COLD. Used for partitions, attics, barns and poultry-houses. Write for sample and prices.

THE HERCULES PLASTER BOARD CO. **HAMPTON, VA.**

NEXT TIME
YOU ORDER
Wrapping Paper
SPECIFY

Nibroc Kraft



This Nibroc Kraft trademark assures greater strength in less weight of paper than you ordinarily buy— together with exceptional beauty of color and finish. Result: The classiest, most-for-your-money wrapping-paper ever put on the market. Send for convincing samples, details and prices; also name of dealer in your locality.

Berlin Mills Company
Portland, Maine
New York Office, 254 Broadway

NORTHCROSS WOOD MANTELS



Sold Direct from Factory to your Home
Our New Catalog, showing largest line in America, FREE. Every contractor should have this catalog.

We Also Furnish Tile Floors
W. J. NORTHCROSS MANTEL CO.
MEMPHIS, TENN., 60 S. Second St.

**WHOLESALE
MANUFACTURERS**

ROOFING CAPS

W. F. ROBERTSON STEEL & IRON CO.
CINCINNATI, OHIO

OUR Show Rooms display the latest Artistic Designs in Mantels, Tile, Lighting Fixtures and Builders' Hardware.

When in Norfolk, pay us a visit. It will be worth your while.

We are pleased at any time to submit estimates, and if you will send us a List of your Requirements, or your Plans and Specifications, we will quote you promptly.

WRITE US TODAY

NORFOLK BUILDING SUPPLIES CORPORATION

95-97 Tazewell Street, 96-98 Brooke Avenue
NORFOLK, VIRGINIA

THE YOUNGSTOWN SHEET AND TUBE COMPANY

YOUNGSTOWN, OHIO.



Puddled Iron is not expensive. We can furnish

Genuine Old Fashioned Puddled Iron Roofing

well painted, at about the same
price as galvanized steel

The puddled iron, used for roofing or siding, will outwear the steel two or three for one. We say this without prejudice because we make a great deal more steel than iron. When we build a new building at our works we roof it with iron because we know by so doing we are saving money. We believe there are no better galvanized steel sheets made than our famous *New Process* but we just as firmly believe that they are inferior to puddled iron when used for roofing purposes.

Our Genuine Puddled Iron Sheets are honestly made. We stand behind that statement with all of our business reputation. You are welcome to come and see them made at any time.

DOUBLE
REFINED
PUDDLED

IRON ROOFING

DISTRICT SALES OFFICES

NEW YORK CITY	PHILADELPHIA, PA.
BOSTON, MASS.	CHICAGO, ILL.
PITTSBURG, PA.	DENVER, COLO.
DALLAS, TEX.	SAN FRANCISCO, CAL.



Will the roofing stay waterproof?

The surface of any roofing may be made attractive, but to be sure the roofing will last you want to know what it's made of.

Genasco

THE TRINIDAD-LAKE-ASPHALT

Ready Roofing

is made of "Nature's everlasting waterproofer." This natural asphalt gives Genasco life and continued resistance. Genasco is lastingly waterproof through and through.

Comes in rolls ready to lay. Ask your dealer for Genasco. Write us for samples and the Good Roof Guide Book—free.

The Kant-leak Kleet, for smooth-surface roofings, prevents nail-leaks and waterproofs seams without cement.



THE BARBER ASPHALT PAVING COMPANY

Largest producers of asphalt, and largest manufacturers of ready roofing in the world.

PHILADELPHIA

New York

San Francisco

Chicago

PROTECTION BRAND ASPHALT ROOFING

SURFACED WITH SAND OR GRAVEL

The Prepared Roofing which is Absolutely Tight. Send for samples showing our 6-inch lap (Patented November 18, 1902).

Our Asphalt Coating Won't Slide on the Steepest Pitch when subjected to the Hot Southern Sun.

ASPHALT READY ROOFING CO.
9 Church Street, NEW YORK

The East Bangor Consolidated Slate Co.
East Bangor, Pa.

Manufacturers of Genuine Bangor Roofing Slate
Also Blackboards and Structural Slate. Correspondence solicited.



Double-Interlocking ROOFING TILE

A clay tile not affected by cold or heat, nor by acids, gases or fumes. The deep double lock insures a water-tight roof. Furnished in natural red or glazes.

THE NATIONAL ROOFING TILE CO. - **LIMA, OHIO**

Southern Agents—ROPER & STRAUSS, 823 Forsyth Bldg., Atlanta, Ga.

Tin Painted **METAL SHINGLES** Galvanized

With Improved "Lock That Locks"
Watertight — Fireproof — Durable — Economical
Best and Cheapest Made by

The HYNDMAN ROOFING CO., CINCINNATI, OHIO

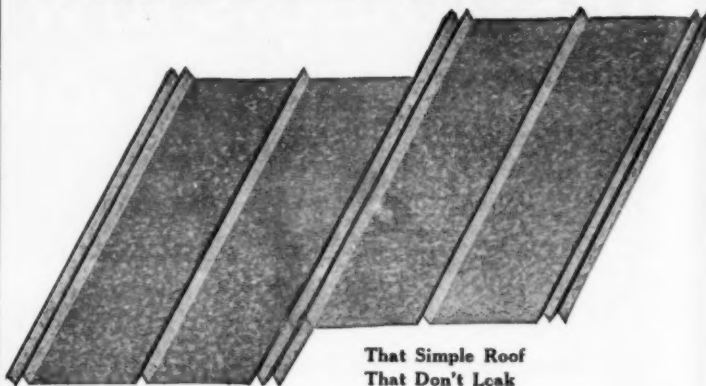


ESPECIALLY PREPARED GRAVEL ROOFING

Composed of two layers of wool felt with a sheet of canvas between. The whole is properly waterproofed and the weather surface is covered with ocean gravel. An excellent covering for any kind of a building.

ARMITAGE MFG. CO., - Richmond, Va.

JUSTRIGHT GALVANIZED ROOFING



That Simple Roof
That Don't Leak

A Weatherproof and Fireproof Roof at a minimum cost, combining the essentials of

SIMPLICITY—No special tools required.

SECURITY—Double lap prevents leakage.

DURABILITY—Galvanized coating, only known lasting protection to sheet metal.

If your dealer does not handle this wonderful roof, write

THE MOESCHL-EDWARDS CORRUGATING CO.

P. O. Box 283, COVINGTON, KY

MANUFACTURERS

Sheet Metal Building Material **EXTERIOR AND INTERIOR**

PRODUCERS OF

E. J. JOHNSON

ROOF SLATE
SLATE BLACKBOARDS

36 Park Row - New York
Black-Green-Red-Purple

Quotations delivered anywhere

"The Highest Standard of Quality" our motto
Correspondence handled by practical people

The Smallest Fire Burden

per capita exists in Europe, principally France and Germany, where most buildings are composed of noncombustible material.



It will not pay you to tear down your frame building. But it will pay you to make it a semi-stone building by covering it with

Genuine Bangor Slate

Being stone it does not burn. Being non-porous it cannot absorb, and hence does not decay. Being non-metallic it does not rust.

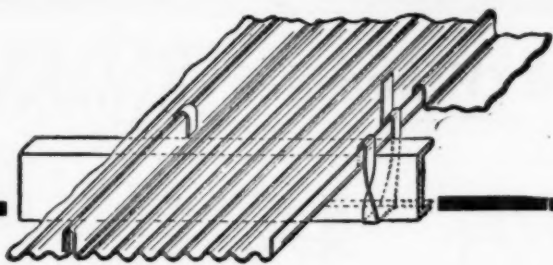
You can also help reduce the fire burden if you bear this in mind when renting a building.

We have some interesting literature showing how to fight and face fire. Write for it today. It is free.

Genuine Bangor Slate Co.

Record Bldg., Easton, Pa.

Quarries, Bangor, Pa.



EDWARDS Patented Pressed Standing Seam Corrugated Steel Roofing

Made in Number 16 to 28 Gauge, Painted or Galvanized

Can be applied on iron purlins without nailing, riveting or puncturing the metal.

The Ideal Fire-Proof Roof Covering for Factories, Foundries, Warehouses, Railroad Sheds, Auditoriums, Public Buildings, etc.

Descriptive booklet sent free on request

The Edwards Manufacturing Co.

"The Sheet Metal Folks"

IRON AND STEEL

411-431 Culvert Street CINCINNATI, OHIO.

Metal Ceilings, Metal Shingles, Metal Spanish Tile, Metal Culverts, Galvanized Cornice, Skylights, Ventilators, Ridging, Cresting, Etc.

Metal Shingles

LARGEST AND BEST LINE IN THE WORLD

"NEW CENTURY" Our well known, standard metal shingle, now covering more than 250 acres of roofs. A style that harmonizes with any style of architecture.

"DORIC" A new pattern, made after the chaste but strong lines of Grecian architecture. Very popular with architects and builders who prefer simplicity of design.

"OLD ENGLISH TILE" Another new pattern, and one that permits builders to finish roofs in harmony with English architecture. Embossing is square at bottom as well as top giving an appearance that closely resembles Old English tile.

Our Metal Shingles are waterproof, fireproof and trouble proof. Easily and quickly laid, make the best safe, most satisfactory and economical roof for residences, stores, churches, school houses and all public buildings.

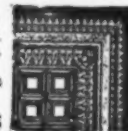
Write for Shingle Catalogue No. 25 and learn all about our metal shingles. Sent free on request.

Southern Ornamental Metal Ceilings

Made in beautiful designs of Louis XIV and Colonial periods. Fireproof, last a lifetime save insurance and reduce repair expense to a minimum. Eliminate danger from falling of plaster.

Chattanooga Roofing & Foundry Co.

CHATTANOOGA, TENNESSEE



For all classes of buildings

P. A. T.

INTERLOCKING ROOFING

Can be laid by anybody without special tools.

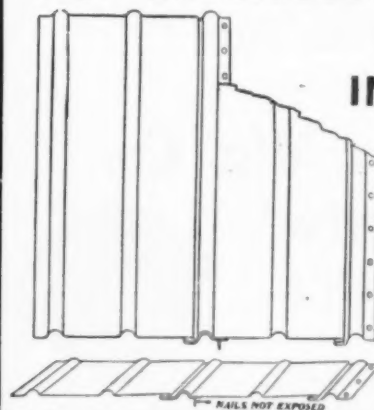
No nails exposed.

Cannot leak.

Fireproof.

Write for Free Samples.

**THE CINCINNATI SHEET
METAL & ROOFING CO.**
30-40 Main St. Cincinnati, Ohio



"Were I to Build

any number of houses, I would want nothing better than a Monitor. It requires less coal and less attention than any boiler I have ever seen."

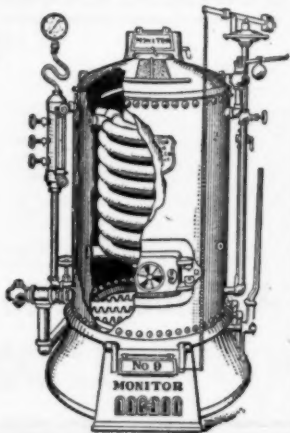
So wrote E. S. Hessler, merchant of Warnersville, Pa., after eight years' use of a Monitor Boiler No. 7.

Catalogue for the asking.

Monitor Steam Generator Mfg. Co.

Office and Salesroom—212 W. Fayette St.
BALTIMORE, MD.

U. J. BOSSLER, Manager
Home Office and Works, Landisville, Pa.



HEATING BUILDINGS OF ANY SIZE

can be economically and efficiently done with

ENTERPRISE Steam and Hot Water Heating Systems

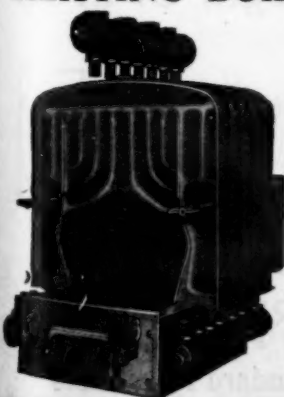
the one way to heat ANY building satisfactorily.

We are specialists in the heating business, and install plants in Residences, Apartments, Hotels, Stores, Office Buildings, etc.

Let us estimate. Send for catalog.

**The Enterprise Steam & Hot Water
Heating Co.**

George R. Bullen, Proprietor, Baltimore, Md.



For fifty-four years Berry Brothers' Architectural Finishes have been the standard of quality by which varnish values have been measured.

The best master painters and dealers everywhere testify to the superior efficiency of Berry Brothers' Varnishes.

The following standard brands are worthy of your careful consideration:

LIQUID GRANITE For finishing floors in the most durable manner possible. The best known and most widely used of all varnishes.

ELASTIC INTERIOR For interior wood-work exposed to severe wear and finished in full gloss. Stands the action of soap and water to an unusual degree.

LUXE BERRY For the finest rubbed or polished finish on interior woodwork. The standard to which all other varnish makers have worked.

ELASTIC OUTSIDE For front doors and all other surfaces exposed to the weather. Great durability under most trying weather conditions.

We have a booklet, "Choosing Your Varnish Maker," that we will be glad to send any manufacturer, painter, dealer or prospective home builder, upon request.

BERRY BROTHERS, Limited

Established 1858

Factories—Detroit, Mich., and Walkerville, Ont.
Branches—New York, Boston, Philadelphia, Baltimore, Chicago, Cincinnati, St. Louis, San Francisco.

BURRISS METAL SHINGLES

MANUFACTURED BY

JNO. T. BURRISS & SON

ANDERSON, S. C.

SLATE WE HAVE WHAT YOU WANT

In Roofing Slate, Slate Blackboards, Structural and Plumbers' Slate
Satisfaction Guaranteed in Quality and Price
Ask for Delivered Prices.

J. K. HOWER, Box M, Slatington, Pa.
R. J. Kichline, Sales Agent

The Peck-Hammond Co.

CINCINNATI, OHIO

MANUFACTURERS OF

**HIGHEST GRADE HEATING, VENTILATING and
SANITARY APPARATUS**

FULLY GUARANTEED WHEN INSTALLED BY US

WRITE FOR INFORMATION

"MILTON"

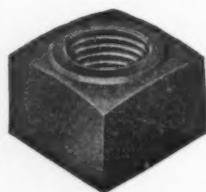


HOT PRESSED NUTS

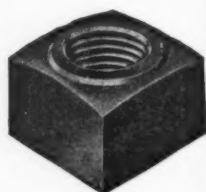


Like all other Milton products
Best of their kind

The Milton Mfg. Co.



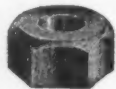
MILTON,
PENN'A.



Cold Punched
Semi-Finished



RIVETS
PUMP CHAIN



Garland Nut & Rivet Co.
PITTSBURGH

Western Office
Railway Exchange Bldg.
Chicago

New Orleans Office
Audubon Bldg.

(Address Desk 34, Pittsburgh, Pa.)

New York Office
45 Broadway



J. C. H. GALVANIZING COMPANY

1110-14 N. Front Street, Philadelphia

Galvanized Rounds, Half Rounds, Half Ovals and Chain
In Stock and for Immediate Shipment

Special Attention to Jobbing Work. Large Work a Specialty. Inquiries Solicited

Wherever **OXYGEN or
HYDROGEN**

is used an



**I.O.C.
SYSTEM**

Oxy-Hydrogen Generating
Plant is a Money-Saver



Single Unit I. O. C.
Generator

SAFE—EFFICIENT—ECONOMICAL

Write for particulars.

INTERNATIONAL OXYGEN COMPANY

WORKS
Waverly, Newark, N. J.

115 Broadway, New York

PARIS, FRANCE
39 Rue de Chateaudun

Galvanizing Plants (Complete)

Why send your material out of town to be galvanized?
Install your own Galvanizing Plant.
We install complete Plants.

Millard F. Wilfong Iron Works Co.

MANUFACTURERS OF

Annealing Boxes, Galvanizing Pots and Kettles, Galvanizing Machinery, Galvanizing
Plants, Dressing Kettles, Smelting Kettles and Tinning Kettles

Kettles and Boxes Carried in Stock

PHILADELPHIA, PA.

Metal Patterns

- Accurate working patterns made from smooth, sound castings in Red Metal, Aluminite, or White Metal. Properly arranged and gated.
- Aluminum Matchplate Patterns.
- Every job guaranteed satisfactory. Prices right in line.

A. Gilbert & Sons Brass Foundry Co.

ST. LOUIS, MO.

or ask our nearest selling agency

ESTABLISHED 1863

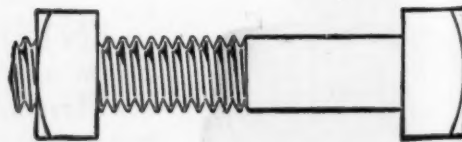
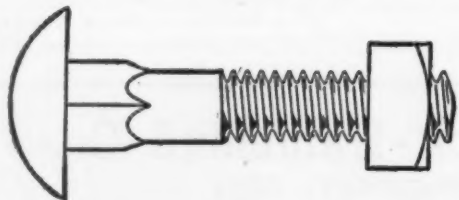
Oliver Iron and Steel Company,

Pittsburgh, U. S. A.

MANUFACTURERS

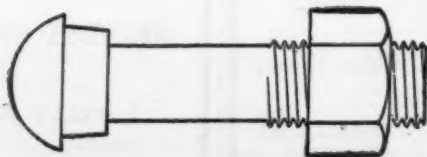
BOLTS

ALL KINDS



RIVETS
PICKS
NUTS
CROWBARS

WASHERS
MATTOCKS
WEDGES
HARROW TEETH



FULL LINES
CARRIED IN STOCK

Write for Standard Price Lists

Steel Castings

Weights from 1 lb. to 300 lbs. each

Suitable for Dogs, Clamps, Wheels, Pinions and other castings where strength is required.
Used almost exclusively for Automobile Work.
Quick deliveries.
Your inquiries solicited.

Crucible Steel Casting Co. Lansdowne, Del. Co., Pa.

C. G. HUSSEY & CO.

Pittsburg Copper & Brass Rolling Mills, PITTSBURGH, PENNA.

COPPER

Sheets, Plates, Rivets, Bars, Nails, Conductor Pipe, Eaves, Trough, Elbows, Shoes, Ferrules.

Malleable Iron Castings of Highest Quality

Annual Capacity 25,000 Tons.

Castings of all descriptions furnished.

Send Blueprints or Samples for Estimates.

MISSOURI MALLEABLE IRON CO.
EAST ST. LOUIS, ILL.

Annealed Steel and Malleable CASTINGS

High tensile strength, cleaned by Sand Blast if desired.

Acme Steel & Malleable Iron Works, Buffalo, N. Y.

RELIANCE STEEL CASTING CO.

Manufacturers of

HIGH GRADE STEEL CASTINGS

Up to 20 Tons in Weight

28th and Smallman Streets

PITTSBURGH, PA.

THE CAROLINE FOUNDRY CO.

BALTIMORE, MD.

Manufacturers of ACID EGGS, NITRE POTS AND PYRITES FURNACES

All kinds of IRON AND BRASS CASTINGS

CASTINGS ALSO FOR CHEMICAL AND FERTILIZER PLANTS

Flour Mill and Elevator MACHINERY

Roll Grinding and Corrugating, Designing and Remodeling Mills a Specialty.

We Take Contracts for Millwright Work Complete.

L. R. VEATCH & CO.

110 East A Street, LOUISVILLE, KY.

Treated Ties,

Bridge Timbers, Piling,
Telegraph Poles, Etc.

SEND FOR PAMPHLET.

International Creosoting and Construction Company,

WORKS: Beaumont, Texas.
Texarkana, Texas.

Address all communications to office,
Galveston, Texas.

Southern Creosoting Company, Ltd. SLIDELL, LOUISIANA U. S. A.

Twenty-eight miles from New Orleans, La., surrounded by the finest timber lands in the South. Facilities for shipping by water and rail.
CREOSOTED TIES, TELEGRAPH POLES, CROSS ARMS, TIMBER, PILES AND PAVING BLOCKS
Capacity, 22,000,000 feet per annum.
A. B. C. Code used. Cable Address, Creosote, Slidell, La.

CREOSOTING
SOUTHERN WOOD PRESERVING CO.
Atlanta, Georgia

WOOD BLOCK PAVING
RAILWAY TIES AND TIMBERS
WOOD CONDUIT CROSS ARMS POLES

AMERICAN CREOSOTE WORKS, NEW ORLEANS, LA. Station B

Creosoted Cross Arms, Lumber, Paving Blocks, Piles, Poles and Ties
Private free wharf for ocean vessels at New Orleans.
Capacity 60 million feet board measure annually.
Western Union and A. P. C. 5th Edition Codes.

National Lumber and Creosoting Co., Texarkana, Ark.

Creosoting and Burnettizing

Manufacturers of Lumber, Ties, Timber, Piling, Poles and Paving Blocks

GULFPORT CREOSOTING COMPANY

GULFPORT, MISSISSIPPI

ALL KINDS OF RAILROAD MATERIAL, PILING, TELEGRAPH and TELEPHONE
POLES and CROSS ARMS TREATED BY THE FULL CELL PROCESS
CAPACITY - - - TWO MILLION FEET B. M. PER MONTH
A NEW AND MODERN PLANT CREOSOTED WOOD PAVING BLOCKS

CONTRACTORS FOR

CREOSOTED WOOD BLOCK PAVING EXCLUSIVELY

Correspondence Solicited

Creosoted Wood Block Paving Co.

917 Maison-Blanche Bldg., New Orleans, La.

A Free and Frank Expression from a satisfied customer

"We cannot speak too highly of our Meal Mill. Our product is conceded to be the best and our capacity is from 15 to 25 per cent. more than we bought our mill for. Should you wish to refer or send anyone to see our mill, we will take a delight in showing them as complete and up-to-date mill as there is anywhere."

(Signed) H. L. STEELE,
Arkadelphia Milling Co., Arkadelphia, Ark.

Our catalog tells you why. A postal will bring it.

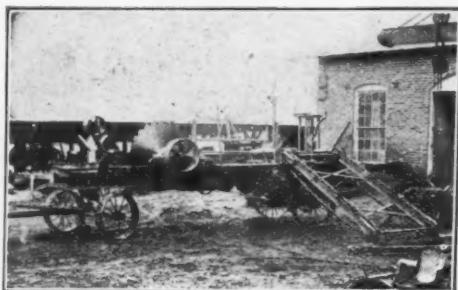
NORDYKE & MARMON COMPANY

America's Leading Mill Builders

1833 W. Morris St.,
INDIANAPOLIS, INDIANA

Established 1851

The Only Up-to-Date Way to Get Out



CROSS TIES

and save
the waste
of
Stumpage

The Standard Cross Tie Machine Co. New Orleans, La.

THE FERNHOLTZ BRICK MACHINERY CO.

MANUFACTURERS OF

DRY PRESS BRICK MACHINERY

Dealers in Brick Yard Supplies.

Boyle Ave. and Old Manchester Road,
ST. LOUIS, MO.

BRICK MACHINERY

Dry Press, Stiff Mud, Soft Mud
Drain Tile Machinery

SCOTT-MADDEN IRON WORKS CO.

KEOKUK, IOWA

W. E. Austin Machinery Co., Atlanta, Ga.
Southern Representatives.

MILL WORK

Jobbers and dealers in Sash, Doors, Blinds and Mill
Work of all kinds will do well to look into our prices
and quality. We are large manufacturers. Estimates
promptly given. Let us hear from you.

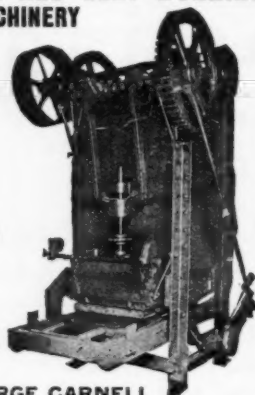
MASSEE & FELTON LUMBER CO., MACON, GA.

PHILA BRICK MACHINE WORKS BRICK AND CLAY WORKING MACHINERY

Power or
Hand
Machines

Complete
Outfit
Furnished

Send for
Catalogue



GEORGE CARNELL

1819 Germantown Ave. PHILADELPHIA

Roller Bearing CARS AND TRUCKS

OF ALL KINDS, FOR ALL PURPOSES



Style 44

SWITCHES, TURNTABLES

Complete Industrial Railway Equipment

Write for Catalogue and Prices.

The Chase Foundry & Mfg. Co.

COLUMBUS, OHIO

"Ventura" Disc-Ventilating Fans

handle immense volumes of air at small cost
for operation.

AMERICAN BLOWER COMPANY

DETROIT, MICH.
U. S. A.

Southern Office: Empire Building, Atlanta

WE CAN
DOUBLE
THE CAPACITY OF YOUR
DRY KILN
GRAND RAPIDS VENEER WORKS

**ALL
VELVET**



If you cut 50,000 feet of
lumber daily and we can save
you

"A DOLLAR A THOUSAND"

"\$15,000.00 A YEAR"

in drying your product, will
it interest you? Larger and
smaller capacities in propor-
tion.

Write us today and we will
tell you how.

Grand Rapids Veneer Works
Grand Rapids, Mich.

YELLOW PINE DOORS COLUMBUS IRON WORKS CO. COLUMBUS, GA.

NEWTON R. WILSON, Pres.
R. M. HALLOWELL, Vice-Prest. and Gen'l Mngr.

E. T. BROUGH, Secy.
L. R. MILLARD, Treasr.

E. A. WILSON, 2d Vice-Prest.
JOS. MUTH, Auditor.

Annual Capacity, 200 Million Feet

Paid Up Capital and Surplus, \$4,300,000

Industrial Lumber Co. Calcasieu Long Leaf Yellow Pine Lumber Railroad and Mining Timbers a Specialty

General Offices—ELIZABETH, CALCASIEU PARISH LOUISIANA

Elizabeth, Calcasieu, Oakdale and Vinton Mills
in Louisiana

Branch Offices: { Chicago, 1520-23 Steger Bldg.
Wichita, Kansas; Monterey, Mex.

All agreements made contingent upon strikes, fires, accidents or causes beyond our control.
Manufactured according to S. L. M. A. specifications.

UNION Brick Machines

with
Pug Mill
combined

Four Sizes
Any Daily Capacity Required
Best Quality Brick
Greatest Economy Production

E. M. FREESE & Co.
GALION, O.

1865 — 47 YEARS — 1912

GOOD 47 Years Ago

"An Akron Firm firmly established."



We have Equipped such
Plants as

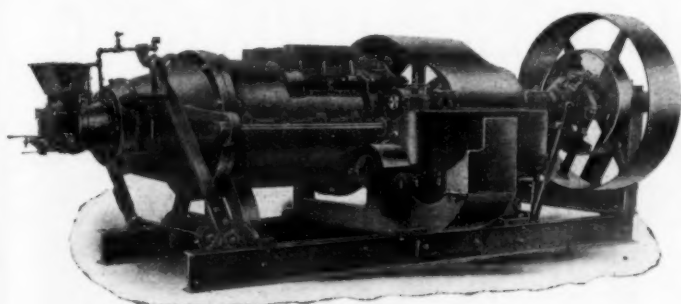
Capital City Sewer Pipe Co.,
Sacramento, Cal.
B. C. Pottery Co.,
Victoria, B. C.
Plymouth Clay Product Co.,
Fort Dodge, Iowa.
W. S. Dickey Clay Mfg. Co.,
Kansas City, Mo.
National Drain Tile Co.,
Terre Haute, Ind.
Shawmut Clay Co.,
Shawmut, Pa.
Don Valley Brick Works,
Toronto, Can.
Pomona Terra-Cotta Co.,
Pomona, N. C.
H. Stevens' Sons Co.,
Macon, Ga.

And in every city, town, village
and crossroads in the United
States where Sewer Pipe and
Clay Machinery is used.

Send for Catalogue
No. 29.

The Taplin-
Rice-Clerkin Co.
Mfrs.

The Machinery Folks
of
AKRON, OHIO,
U. S. A.



STEELE'S NO. 5 BRICK MACHINE.

STEELE'S BRICK MACHINERY

Increase Your Profits And
The Quality of Your Bricks

Especially Adapted for Working Southern Clays

Twenty years we have made the better kind of brick machinery. Its successful use for these 20 years proves that it must be right. Frequently our machines have displaced other makes and made good. Our machines are always "up-to-the-minute," containing every known improvement.

Cut above shows No. 5, our latest and largest brick machine, and cut below our Rotary Automatic Cutters. These, as well as all our machines, are absolutely perfect in construction. Both are mounted on steel foundation.

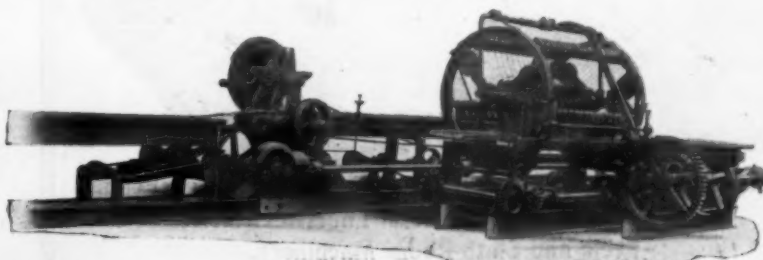
We make five sizes of Brick Machines. If your present machines do not please you, or if you are going to start a new plant, we know we can interest you.

WRITE FOR PRINTED MATTER

J. C. STEELE & SONS
STATESVILLE, N. C.

MANUFACTURERS OF

The Better Kind of Brick Machinery



STEELE'S ROTARY AUTOMATIC BRICK CUTTERS
END AND SIDE CUT

Kitson Products

Blowing Systems

for conveying bale cotton
from storehouse to picker room

Lappers and

Cleaning Trunks

Self-Feeding Openers

Waste-Working Machinery

Raw Stock Cotton Dryers

We own the Patterns and can furnish Repair Parts for Pickers
formerly built by

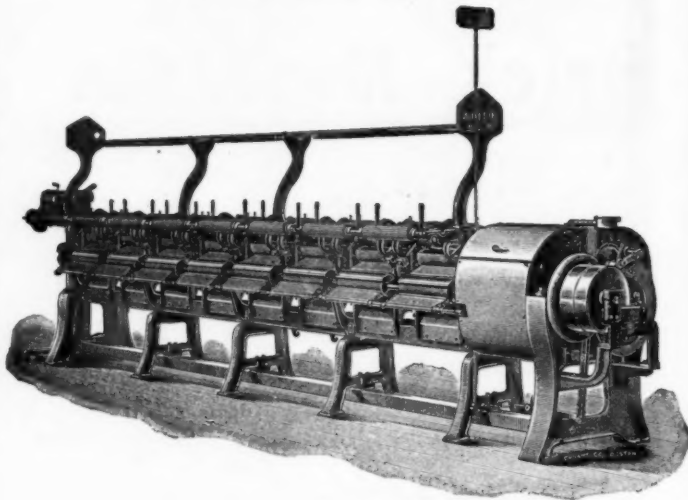
WHITEHEAD & ATHERTON, - Lowell, Mass.
ATHERTON MACHINE CO., - Lowell, Mass.
A. T. ATHERTON MACHINE CO., - Pawtucket, R. I.

Kitson Machine Shop

Lowell, Mass.

THE WHITIN MACHINE WORKS COTTON MACHINERY

Whitinsville, Mass.



Comber

... We Build ...

CARDS
COMBERS
DRAWING FRAMES
ROVING FRAMES
SPINNING FRAMES

SPOOLERS
TWISTERS
REELS
LONG CHAIN QUILLERS
LOOMS

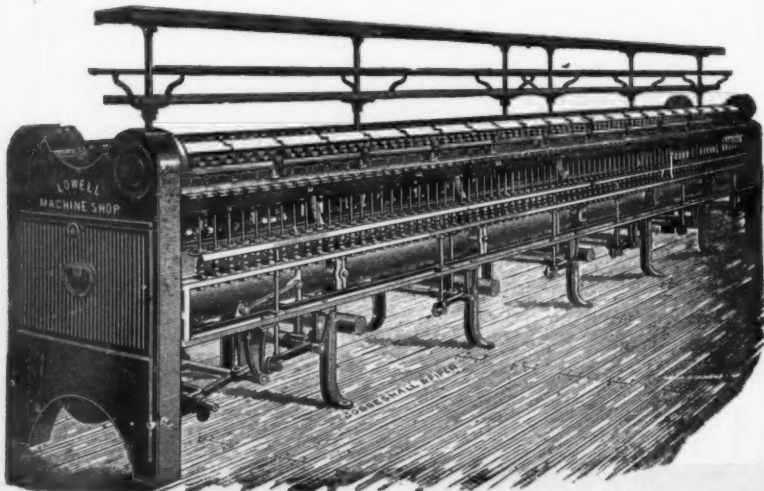
SOUTHERN AGENT: S. W. CRAMER
Charlotte, N. C.



COTTON MACHINERY

LOWELL MACHINE SHOP

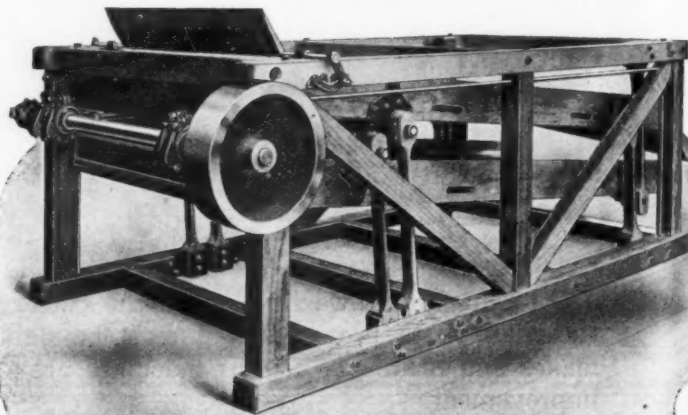
LOWELL, MASS.



Cards, Railway Heads, Drawing Frames, Fly Frames, Ring Frames
Spoolers, Wappers, Slashers, Looms, Twistors,
Reels and Cloth Room Machinery.



CARVER COTTON GIN CO.



Most Quiet and Easy Running Shaker Made

Carver Double Shaker Separator

Illustration shows Single Pass

Made in

30, 36, 42 and 48-inch sizes.

Made also

DOUBLE PASS AND TANDEM

Eccentrics are babbitted and self-oiling.

Fitted with Ring Oiling Boxes.

WOODEN SIDE SPRINGS

set at a slight angle, which give a sharp vibration without shock.

EAST BRIDGEWATER, MASS.

Texas Office:
179 Main St., Dallas

Atlanta:
1018 Empire Building



THE BEST
**NORTHROP LOOM
BOBBINS AND
SHUTTLES**

ARE MADE BY

**NORTHROP
LOOM MANUFACTURERS**

Look for our name on your Shuttles and Bobbins

DRAPER COMPANY

HOPEDALE, MASS.

SOUTHERN AGENT

J. D. CLOUDMAN - 40 S. Forsyth St., ATLANTA, GA.

COTTON MILL EQUIPMENT

Fire Hose and Supplies
Shuttles, Spools and Bobbins
Lace Leather and Belt Hooks
Rawhide and Leather Pickers of all kinds

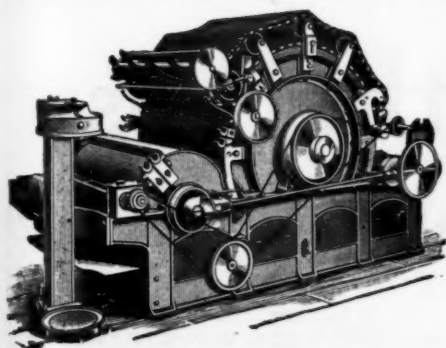
LOOM HARNESS [^]_N REEDS

Wire Heddles, Heddle Frames and
Wire Goods
Roll Covering Machinery and Supplies
Belting, Strapping and Pickers
Textile Mill Supplies

American Supply Co.
PROVIDENCE, R. I.

THE best rings that experience can produce
that money can buy are the **DOUBLE
BURNISHED** rings & the **DIAMOND
FINISHED** rings made by the
WHITINSVILLE SPINNING RING CO
WHITINSVILLE MASS.

COTTON MILL MACHINERY



Cards,
Drawing Frames
Railway Heads
Combers' Lappers
Spinning Frames
Mules, Looms

MASON MACHINE WORKS,
TAUNTON, MASS.

Southern Office - - - CHARLOTTE, N. C.

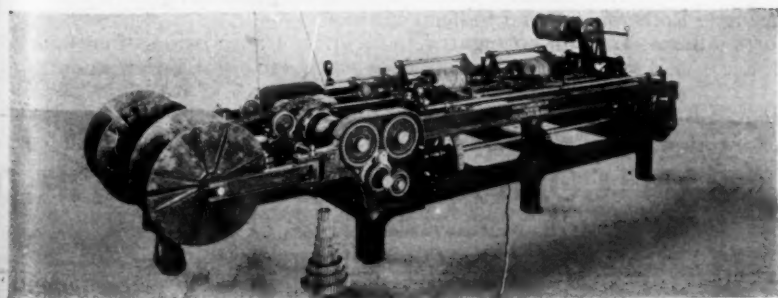
Cotton Ginning Machinery

For all requirements of Ginners and
Growers. Write to nearest Continental
Sales Office for Catalogue H.

Continental Gin Co.

Atlanta, Ga., Birmingham, Ala., Dallas, Tex.,
Memphis, Tenn., Charlotte, N. C.

COTTON, TWINE AND ROPE MACHINERY



The Haskell-Dawes Machines are built upon a New Principle,
whereby the most Positive Results are secured. They occupy less
space than the ordinary type of machines, require Less Relative
Power and will turn out a Much Larger Product of Twine and Rope.
The Special Attention of Cotton Manufacturers is called to our
new Forming and Rope-Laying Machines.

Descriptive Catalogue sent on Application.

The Haskell-Dawes Machine Co.
176 FEDERAL STREET, BOSTON, MASS.

THE MURRAY COMPANY

DALLAS, TEXAS

MANUFACTURERS OF

ATLANTA, GA.

Cotton Seed Oil Machinery

Complete Equipment for from Fifteen to Five Hundred Tons Daily Capacity

The Latest Improvements in Seed Cleaning, Hulling, Separating, Linting and Press Room Machinery

Plans Furnished for Modern Plants in Mill or Steel Construction

CORRESPONDENCE SOLICITED



The American Cotton Oil Co.

27 BEAVER STREET,

CABLE ADDRESS:

"AMCOTOIL," NEW YORK.

NEW YORK CITY.

COTTONSEED PRODUCTS

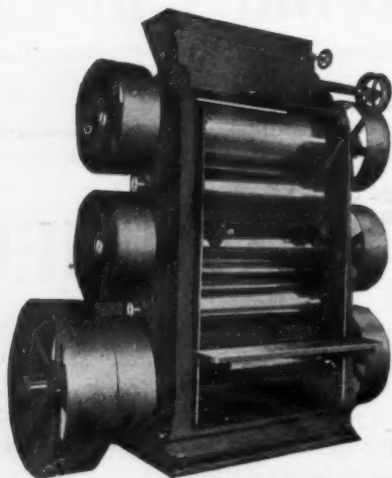
OIL, STEARINE, CAKE, MEAL, LINTERS, ASHES, HULLS.

The Celebrated **I. X. L. COOKING OIL.***The STANDARD and the BEST.*

Made in Refineries at

NEW YORK, CINCINNATI, ST. LOUIS, MEMPHIS, NEW ORLEANS.
Pure Food Law Guaranteed under Serial No. 2593.

Who doesn't want the best OIL MILL MACHINERY?



Ours is tried and true. It is used by Mill Owners who KNOW. We guarantee every piece we turn out.

"CALLAHAN" CRUSHER ROLLS are shown herewith

ADVANTAGES:

- (1) Diameter. Lower Roll, 16"; 4 Upper Rolls, 14" each.
- (2) Completeness. Heavy, long, babbitted, self-oiling adjustable bearings bored true,
Pulleys,
Frame,
Hopper,
Adjustable hopper boards,
Feed roll.
Clutch Pulley for same,
Adjustable, balanced, steel-weighted scrapers.
- (3) Casing. Rolls are encased to keep out dust.
- (4) Corrugation. Top roll corrugated to facilitate transmission of cotton-seed meats, linseed, corn germs, etc. Can be left smooth if desired.
- (5) Drive. Rolls provided with any desired drive.

Let us know when you are in the market. Write or wire for information and prices.

THE W. P. CALLAHAN COMPANY - DAYTON, OHIO
Representatives (R. R. Nolen, Dallas, Tex.
The De Marco Fulford Co., Atlanta, Ga.)

Everything for the Oil Mill except the seed

Adopted by majority of
Cotton Mills
as a cleanser having the
Best Value.

SAVOGRAN

U.S. GOV'T STANDARD CLEANING POWDER.

Accepted as the most economical and efficient for all cleansing purposes.
INDIA ALKALI WORKS
BOSTON, MASS.
Makers for 36 Years.

Revolving
Flat
Cards,
Lap Winders,
Drawing
Frames,
Evener
Drawing

SACO-PETEE COMPANY

NEWTON UPPER FALLS, MASS., U. S. A.

COTTON MACHINERY

Shops { Biddeford, Me.
Newton Upper Falls, Mass.
Southern Agent, A. H. WASHBURN, Charlotte, N. C.

Slubbing,
Intermediate
and Roving
Frames,
Spinning
Frames,
Spoolers
and Reels

Special Hydraulic Presses

DESIGNED TO MEET REQUIREMENTS.

WE MANUFACTURE A FULL LINE OF COTTON SEED OIL MACHINERY.
ACCUMULATORS, AIR, AND HYDRAULIC. FULL LINE OF SMOKING AND PLUG TOBACCO MACHINERY.

THE CARDWELL MACHINE CO., Richmond, Va., U. S. A.

SEAMLESS HOSIERY Knitting Machines

that answer every purpose and

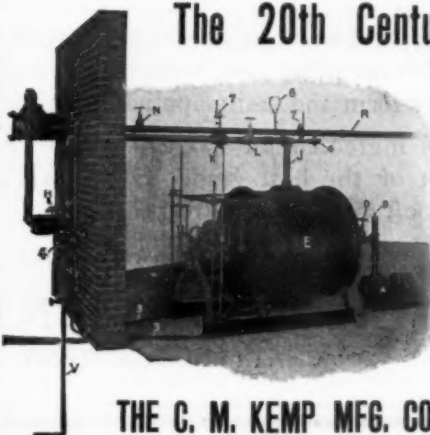
LATCH NEEDLES

that are a superior quality are made by

ACME KNITTING MACHINE & NEEDLE CO.
Franklin, N. H.

Philadelphia Office, Bourse Bldg.

The 20th Century Gas Machine



produces an inexpensive and remarkably efficient gas service, especially suited for

Singeing, Heating Calenders, Soldering, Tempering, Brazing, Welding, Annealing, Laundry Purposes, etc.

Used by the largest mills and factories in the world. Results guaranteed. Furnished on approval. Send for descriptive catalogue.

THE C. M. KEMP MFG. CO., BALTIMORE, MD.

Cotton Seed Oil Makers

NOTICE THIS SAVING

THE ANDERSON OIL EXPPELLER



EXPPELLER OPENED

does away with
Hullers, Rolls,
Presses, Hydraulic
Pumps, Formers,
Accumulators,
Cookers, Cake
Breakers.

No Press Cloth. Better oil and more valuable cake, both at less money. Five to eight tons per 24 hours. Ask us about it.

BURRUSS ENGINEERING CO.
ATLANTA, GA.

WESTERN ENGINEERING CO., Dallas, Texas
Agents for Texas and Oklahoma

THE Buckeye Iron & Brass Works

DAYTON, OHIO, U. S. A.

Manufacturers of

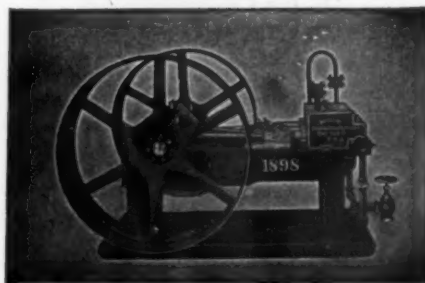
COTTONSEED OIL MILL

AND

LINSEED OIL MILL

MACHINERY

OF ALL KINDS



HYDRAULIC PUMP

Hydraulic Presses,
Rolls,
Hydraulic Pumps,
Cake Formers,
Meal Cookers,
Hulling & Cleaning
Machinery,
Cake Breakers,
Attrition Mills,

AND

ACCUMULATORS—The Most Perfect System
of Pressure Application

THE VERY LATEST IMPROVEMENTS AND THE VERY BEST



A Superior Paint For All Exterior and Interior Work

For painting the surfaces of Brick, Wood, Steel, Iron, Plaster, Stucco or Concrete, PORTLAND-PAINT is without an equal. At a very small cost it increases light and cleanliness of Areaways, Cellars, etc. Made in various colors and is especially suitable for tinting plastered walls.

PORTLAND-PAINT is a superior paint in every way. Cost only 1/3 that of oil paint and does as good and as much work.

PORTLAND-PAINT

"The Cement Paint"

is an improved cold water paint. It is an extraordinary paint and not to be classed with other cold water paints on the market. Comes in dry powder form and easily applied with either brush or spray.

The principal ingredient of PORTLAND-PAINT—White Portland Cement of the best grade—GUARANTEES its durability. Is weatherproof, sanitary and fire-resisting.

Write today for sample and prices.

CHICKAMAUGA CEMENT COMPANY
CHATTANOOGA, TENN.



Talc and Soapstone

CRAYONS and PENCILS

Which took first prize at "Appalachian Exposition," Knoxville, Tenn., September, 1911. We also manufacture

Talc and Soapstone Powders
White and Yellow Foundry Facings

Georgia Talc Company

MINES
Chatsworth, Ga.

HEAD OFFICE
Asheville, N. C.

HOW IS YOUR CRAYON SUPPLY?

If low, and you don't know the Lowell Crayon, get acquainted right away. 'Twill pay you just as it's paying others. Made in 15 different colors.

LOWELL CRAYON CO., - - **LOWELL, MASS.**
Original Makers Trade Mark on Every Box.

SCALES

Ginneries Oil Mills

Let us bid on your Scale requirements. Our prices are interesting. Quality satisfactory. We Specialize Wagon Scales. Can also furnish Railroad, Mining and other Scales.

THE J. F. ALMOND SALES CO.,
Agents wanted. Charlotte, N. C.

Baltimore Steam Packet Co.

OLD BAY LINE,
FOR OLD POINT COMFORT, NORFOLK,
AND PORTSMOUTH,
CONNECTING WITH ALL RAIL LINES
SOUTH AND WEST.

THROUGH TICKETS TO ALL POINTS.
Freight received and forwarded every week-day, and Bills of Lading issued to all points South and West and for Richmond, Norfolk, Portsmouth, Old Point Comfort and Mathews and Gloucester Landings. Splendid Steamers Florida, Virginia or Alabama—finest south of New York, equipped with United Wireless Telegraphy. Leave Company's Pier, Light St., foot of Barre St., daily, including Sunday, at 6.30 P. M.

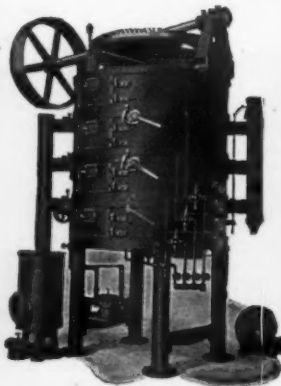
Tickets to all points and staterooms reserved at Ticket Office, 107 E. Baltimore St.; S. A. L. Ry. Ticket Office, Baltimore and Calvert Sts.; Albaugh's, 2 E. Fayette St., and at 500 Light St.

P. BYRD THOMPSON,
Traffic Manager.
JAMES E. BYRD,
General Passenger Agent.
JOHN R. SHERWOOD,
President and General Manager.

COMPLETE LINE OF IMPROVED

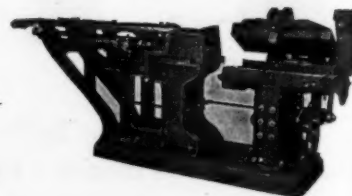
Cotton Seed Oil Mill Machinery

Everything Necessary for the Press Room



AUTOMATIC CONTINUOUS COOKER

Rolls
Power Pumps
Steel Press Cylinders
Job Cotton Seed Huller
Cotton Seed Presses
Continuous Cookers
Hydraulic Cake Formers
Safety Press Boxes
Cake Cooler
Seed Dryer
Automatic Change Valves
Accumulators
Faherty Huller Knives
Cake Trimmers
Cake Packers
Hydraulic Fittings



HYDRAULIC CAKE FORMER

WRITE US FOR PRICES

The French Oil Mill Machinery Co.
PIQUA, OHIO

REPRESENTATIVES: { MR. PAUL WATSON, Galveston, Texas.
MR. W. P. FERGUSON, Empire Building, Atlanta, Ga.



MALLEABLE IRON AND STEEL CO

Makers of

**"VANADIS" AND "GLOBE" MALLEABLE CASTINGS
AND DROP FORGINGS OF QUALITY**

We are pioneers in the production of alloyed malleables. If you wish high grade, uniform castings and drop forgings of superior finish, write us. Pattern work a specialty. Prompt and efficient service.

GLOBE MALLEABLE IRON & STEEL CO.
SYRACUSE, N. Y.

One Way of Selling Used Machinery

is by advertising it in the Manufacturers Record. Send us a list of what you have to sell and we'll gladly tell you the cost of advertising it. The "Bargains in Machinery" pages of the Manufacturers Record are a market place for all kinds of machinery and equipment.

Place your machinery before the readers of this department.



Pittsburgh Valve, Foundry & Construction Co.
PITTSBURGH, PA.

Valves, Fittings and Atwood Specialties

DESIGNERS, MANUFACTURERS AND ERECTORS COMPLETE STEAM, AIR,
GAS, WATER AND HYDRAULIC PIPING SYSTEMS
PIPE BENDING A SPECIALTY

FUEL OIL EQUIPMENT

Oil Burners for Every Purpose

Complete installations for Power Plants, Iron and Steel Works, Smelters, Brick, Cement and Lime Kilns, Foundries, Glass and Pottery Works, etc., etc.

PROVEN EFFICIENCY AND ECONOMY

CATALOGUE ON REQUEST

Liquifuel Engineering & Construction Co.

Phlipps Power Bldg., PITTSBURGH, PA.

Choosing a Heating System in the Light of Efficiency

The effect of the efficiency of the heating system extends far beyond the relative cost of operation and maintenance. In many cases the heating system is directly responsible for the quantity and quality of the output. The monetary loss because of sick leave, that three o'clock drowsiness and the inefficient work of employees is often chargeable directly to the heating system.

By positively ventilating as well as heating the

Sturtevant System of Heating and Ventilation

creates as nearly as possible ideal conditions. It furnishes air, fresh and pure, heated to just the right temperature. It forces it to all parts of the building—there are no cold corners.

In many instances the installation of a Sturtevant Heating and Ventilating System in factory or office building has decreased sick leave and increased output.

There are many other interesting features about this system.

Ask us for Bulletin No. 112-M

B. F. Sturtevant Co.
Hyde Park, Boston, Mass.

And Principal Cities of the World

Chesapeake Steamship Co.

"CHESAPEAKE LINE"

NEW STEAMERS "CITY OF BALTIMORE"
AND "CITY OF NORFOLK."

Equipped with United Wireless. Private Bathrooms, hot and cold, salt and fresh water. Shower Baths in bedrooms. Running water in all staterooms.

Leave Baltimore for Norfolk and Old Point Comfort daily, including Sunday, at 4.30 P. M.; connecting with rail lines for all points beyond, and water lines for Richmond, Va., Matthews and Gloucester Landings, and New York.

Leave Norfolk 8.15 P. M., Old Point Comfort 7.15 P. M. daily, including Sunday, for Baltimore and all points beyond.

"York River Line"

Leave Baltimore, Md., 5 P. M. Tuesday, Thursday and Saturday for York River Landings, West Point, Richmond and points beyond.

Leave West Point 6 P. M. Monday, Wednesday and Friday for York River Landings, Baltimore and all points beyond.

Freight received and forwarded. Bills of lading issued to all points. Ships between Baltimore and Norfolk equipped with cold-storage for handling perishable freight.

N. CHAPMAN, A. G. P. A.

M. J. CHISM, G. P. A. Baltimore, Md.



Reduce Insurance Rates

USE APPROVED

**WATCHMAN'S
CLOCKS**

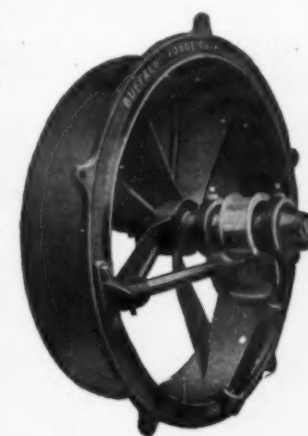
Louis E. Kaiser

Cor. Baltimore and

Liberty Sts.

BALTIMORE, MD.

Watchman's
Clocks, Time
Recorders, Fac-
tory Clocks,
Fire Extinguishers, etc.



BUFFALO DISK FANS

Wonderfully efficient in removing foul, overheated air and replacing it with fresh air directly from the outside. Have the bearings on one side for convenience in oiling up, and are made electric and pulley driven. Unexcelled for boiler and engine rooms, overheated top floors, offices, and work-rooms. As good as a 20-mile breeze blowing straight through the room.

BUFFALO FORGE CO.
BUFFALO, N. Y.

New York Philadelphia Charlotte
St. Louis Pittsburgh Cincinnati

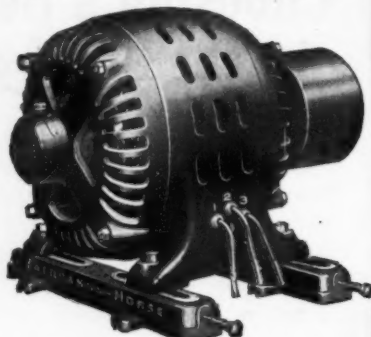
The Best Way To Drive Your Machines

IS WITH
Fairbanks - Morse
HIGH INSULATION
Induction Motors

Our motors are unsurpassed in efficiency, starting torque, overload capacity and the other common virtues of induction motors, and in addition have insulation of unusual strength and durability.

Remember—a motor lasts as long as its insulation.

Catalog No. 938XC gives all details of construction.



Fairbanks, Morse & Co.,

Branches in Principal Northern Cities

Atlanta, Ga. Jacksonville, Fla.
Richmond, Va. New Orleans, La.
Main Office: 900 So. Wabash Ave.,
Chicago, Ill.

YELLOW STRAND WIRE ROPE

See advertisement on page 18

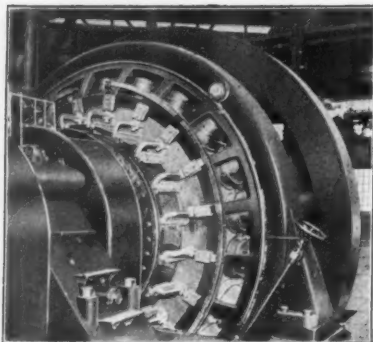
YELLOW STRAND never betrayed a confidence

BRODERICK & BASCOM ROPE CO., 809 N. Main St., ST. LOUIS, MO.

WORKS { St. Louis, Mo.
Seattle, Wash.

BRANCHES { 76 Warren St., New York
Seattle, Wash.; San Francisco

ROLLING Steel and Wood DOORS
PERMANENT SKYLIGHTS
THE KINNEAR MANFG. CO. COLUMBUS, O.



Direct Current Generators

that will convince you of their merit by their long

OPERATING RECORD

can be seen in your vicinity. Ask our nearest District Office about them.

Sizes 3 K. W. and Up.

Complete Electrical Equipments

Allis-Chalmers Co.
General Offices, Milwaukee, Wis.

NICHOLSON FILES

MEAN A SAVING IN
TIME, LABOR AND
EXPENSE

NICHOLSON
U.S.A.

NICHOLSON FILE CO., PROVIDENCE, R. I.

The Time to Put Out a Fire
is When It Starts.

CRINNELL
AUTOMATIC SPRINKLERS

have put out 10,000 fires before they had a chance to gather headway, and kept 5000 others from spreading.

GENERAL FIRE EXTINGUISHER CO.

EXECUTIVE OFFICES: PROVIDENCE, R. I.

See our Advertisement
on page 3.

Plants, Warehouses and Offices in Principal
Cities of the United States and Canada.

40-44

OUR RINGS



Set the Standard for Quality

MIRROR SPINNING RINGS

TRADE MARK REG. U.S. PAT. OFF.

DRAPER COMPANY

HOPE DALE, MASS.

THERE ARE

NONE OTHERS

"JUST AS GOOD"



THE ORIGINAL STEAM JET PUMP

Adapted for tanneries, creameries, R. R. water stations, etc.
Has no valves. Durable, economical, simple.
Write for catalogue.

BLAKESLEE MFG. CO., 27 Du Quoin St., DU QUOIN, ILL.

MOLONEY TRANSFORMERS

MOLONEY ELECTRIC CO., ST. LOUIS, U. S. A.

WINDSOR, ONT., CANADA.



"STAG" BRAND

Manganese Steel Castings

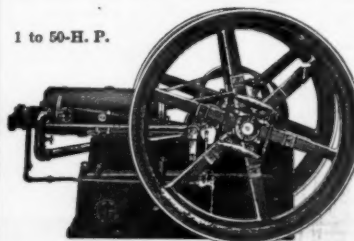
EDGAR ALLEN AMERICAN MANGANESE STEEL CO.

CHICAGO, ILL.

NEW CASTLE, DEL.

IHC Gasoline Engines and Tractors

1 to 50-H. P.



High-grade four-cycle engines, made in every style, horizontal and vertical, air and water cooled; stationary, portable and mounted on skids. Operate on gas, gasoline, kerosene, naphtha, distillate, or alcohol. Kerosene-gasoline tractors, 12, 15, 20, 25 and 45 H. P.

I H C engines are general purpose machines for use on farm, in mill, factory or railroad equipment. I H C tractors are used for plowing, hauling, road grading—for every form of drawbar and belt work. Catalogues and full information on request.

INTERNATIONAL HARVESTER COMPANY OF AMERICA
(Incorporated)
708 Harvester Bldg. CHICAGO U S A

ROEBLING

WIRE ROPE

Made from Roebling Wire drawn from carefully selected and tested metals and stranded into rope in accordance with designs shown by long experience to be best adapted for satisfactory service.

JOHN A. ROEBLING'S SONS CO.

SO. OFFICE, Empire Bldg., ATLANTA
WAREHOUSE IN SAVANNAH

Trenton, N. J.

MANUFACTURERS RECORD

A WEEKLY SOUTHERN INDUSTRIAL, RAILROAD AND FINANCIAL NEWSPAPER

Trade Name Registered in the U. S. Patent Office.

VOL. LXXI. No. 26.
WEEKLY.

BALTIMORE, JULY 4, 1912.

\$4.00 A YEAR.
SINGLE COPIES, 15 CENTS.

Manufacturers Record

PUBLISHED EVERY THURSDAY BY THE
MANUFACTURERS RECORD PUBLISHING CO.,
BALTIMORE.

RICHARD H. EDMONDS, President.
FRANK GOULD, Vice-President.
VICTOR H. POWER, Treasurer.
I. S. FIELD, Secretary.

RICHARD H. EDMONDS,
Editor and General Manager.

EDWARD INGLE, Managing Editor.

ALBERT PHENIS,
General Staff Correspondent.

Branch Offices:

New York—52 Broadway.
Boston—643 Old South Building.
Chicago—1116 Fisher Building.
St. Louis—543 Century Building.

Subscription, \$4 a year
(payable in advance) to United States,
Mexico, Cuba, Porto Rico, Hawaii and
the Philippines.

To Foreign Countries (including Canada) in
the Postal Union, \$6.50 a year.

[Entered at the Baltimore Postoffice as sec-
ond-class matter.]

BALTIMORE, JULY 4, 1912.

ACTIVITY IN MUNICIPAL IMPROVEMENTS.

The activity in municipal improvement work throughout the South is strikingly illustrated in the number and variety of advertisements in our Proposal Department this week. These advertisements include the offerings of bonds for sale, the proceeds to be used for municipal work, by many of the leading towns and cities of the South, and advertisements inviting bids for the construction of steel and concrete bridges, sidewalks, courthouses, water and sewerage plants, water-purification plants, miscellaneous buildings, drainage contracts, wood and metal furniture equipment, glazed sewer tile and other work, and supplies of various kinds.

Increasing prosperity throughout the South is greatly stimulating towns and cities in making municipal improvements, while reclamation and drainage operations are attracting ever-increasing attention. The MANUFACTURERS RECORD has for some years been the accepted medium and the best that can be found for offering Southern municipal, county and State bonds, and inviting bids for every line of construction work. It is read by the bond buyers of the country for information relating to the issuing of new securities, and the leading contractors throughout the entire country carefully watch every issue for information in regard to work on which bids are invited. By reason of these facts it brings competitive bids for bonds and for construction work, securing a competition which is worth many times the cost of the advertising. Municipal authorities who are interested in securing the best results for their people have long since learned the value of the MANUFACTURERS RECORD for work of this kind.

FORWARD!

Amid the turmoil of politics, and regardless of the claims of this or that party as to its particular theories being necessary to the nation's material advancement, it may be well to bear in mind the following facts:

1. The country is now producing pig-iron at the rate of about 29,000,000 tons a year, with consumption exceeding production. This is at the rate of about 4,000,000 tons higher than the boom year of 1906, and at the rate of about 2,000,000 tons higher than the production of 1910, the record year of iron output.

2. The cotton-manufacturing interests of the country, which for several years suffered from a period of depression greater than this industry had had for very many years, are now enjoying great prosperity. Cotton mills in all parts of the country are crowded with work and making money.

3. To the amazement of the cotton trade of the world, a crop of 16,500,000 bales has been rapidly absorbed at steadily advancing prices.

4. Crop prospects indicate that once more the American farmers will before the end of this year have produced eight billion to nine billion of value.

5. The 250,000 miles of railroad in this country are, with few exceptions, taxed almost to the limit of their ability to handle existing traffic, which will rapidly increase as the crop-moving season approaches.

6. The 93,000,000 people who dwell beneath the Stars and Stripes in Continental United States, the most active, virile, energetic people on earth, are steadily increasing the wealth of the country, are doing business at the same old stands in the same old energetic way, are developing the resources of all sections, are building more and better homes, more and more costly hotels and office buildings, more good roads, making more municipal improvements, and doing the other things that express the boundless energy of such a people at work in such a country.

Politicians may rave and rant, may ignore economic laws, which are more powerful than parties or governments; they may undertake to prove this or that, and hope to befuddle the people; but the country goes steadily forward, with work for all who are willing to work, with ever-increasing prosperity of the farmers, with better wages in the shops, and with every other needed evidence of progress.

Despite the weeks of political activity which are ahead of us, the merchant and the manufacturer, the banker and the farmer, can all go ahead with energy and enthusiasm in the development of the business interests of this great land, where nature has made it possible by its abundant blessings to develop more general prosperity, more widespread business activity, more evenly-divided wealth, notwithstanding the vastness of the wealth of some of the great rich, than has ever been known

in any other land in human history. There may be some wrongs to be righted, some paths to be cut through wildernesses, some suppression of the power of concentrated wealth, some added advantages to be given to the masses; but, broadly speaking, the people of this land have more advantages, live better, have better educational opportunities, more comforts and conveniences than the people of any other country on earth have ever known, despite politics.

It is not yet possible to so change the order of creation that every baby born will have exactly the same mental, physical and moral strength as every other baby. As it is not possible to have a uniformity in these things, so it is not yet possible under human government, until the Almighty changes the conditions of creation, to find a way by which every man shall have exactly the same ability to have and to hold as every other man.

In the meantime, the country moves forward to higher ground and to better advantages for the poor as well as for the rich. There is no need for pessimism, no need for timidity in business, no reason why political agitation should halt our National progress. The country and its material resources are greater than parties.

PORTLAND CEMENT IN THE SOUTH.

The South is now producing more Portland cement than did the whole country in 1900. In that year the production in the country was 8,482,020 barrels. In 1911 ten Southern States—Alabama, Georgia, Kentucky, Maryland, Missouri, Oklahoma, Tennessee, Texas, Virginia and West Virginia—produced 10,881,415 barrels, an increase of 7.9 per cent. over the production in those States in 1910, while the increase in production in the rest of the country was only 2.6 per cent. Between 1900 and 1911 the increase in the South was from 125,479 barrels produced by four plants to 10,881,415 barrels produced by 22 plants. Both as to the number of plants and as to the output the rate of increase in the South was much greater than in the country as a whole. In 1900 50 plants of the country produced 8,482,020 barrels, and in 1911 the production was 78,528,637 barrels by 115 plants.

In 1900 the South was making nearly as much Portland cement as the whole country made in 1885. In the past 11 years the South made greater progress in this industry than the whole country had made in the preceding 15 years, and began to take its place, for which it is so eminently fitted, in one of the great phenomena of American manufacturing history. From an insignificant \$126,000 value in 1880, the output of Portland cement in this country reached in 1911 a value of \$66,248,817, and the rapidity of that growth is comparable only, perhaps, to that of the Southern cotton-seed-oil industry. The South is the peculiar home of the latter, and is des-

tined to be a great field for the former, both in manufacturing and in use. The South has immense resources, widely distributed, of materials for the manufacture of Portland cement, and has really only begun to use it in lines of construction constantly expanding in number.

THE INCREASING VARIETY IN SOUTHERN FARM CROPS.

Directly bearing upon the notable increase in the value of farm lands in the South in the first 10 years of this century was the increase in the value of crops in the South. Between 1900 and 1910 the value of Southern farm lands increased from \$3,233,461,000 to \$7,298,383,000, or by \$4,064,922,000, equal to 123.8 per cent., although the area of such lands under improvement increased only from 148,254,000 acres to 173,982,000 acres, or by 25,728,000 acres, equal to 17.3 per cent. The increase in the value of leading Southern crops was not at as great a rate as the increase in the value of lands, but the two increases were closely related, as is indicated in the following table comparing the values of 20 of the leading crops of the South in 1890 and 1900:

Crop.	1890.	1900.
Cotton	\$323,754,000	\$703,592,000
Corn	310,390,000	547,934,000
Hay	79,068,000	129,935,000
Wheat	71,063,000	90,083,000
Tobacco	39,423,000	79,183,000
Oats	22,403,000	42,891,000
Sweet potatoes	17,269,000	31,819,000
Irish potatoes	14,303,000	29,489,000
Peanuts	7,221,000	18,257,000
Rice	6,329,000	16,020,000
Peas	5,666,000	6,616,000
Kafir corn	379,000	6,491,000
Broom corn	489,000	2,889,000
Rye	811,000	1,634,000
Hops	232,000	1,036,000
Buckwheat	349,000	815,000
Beans	662,000	777,000
Barley	200,000	544,000
Hemp	468,000	349,000
Flaxseed	538,000	187,000

Total . . . \$901,017,000 \$1,710,541,000

The aggregate value of these 20 crops represented about 60 per cent. of the total value of the whole agricultural output of the South in 1900. For the 20 crops the aggregate increase in 10 years was from \$901,017,000 to \$1,710,541,000, or by \$809,524,000, equal to 87.9 per cent. There were decreases in the case of hemp and flaxseed, but the individual increases ranged from \$379,838,000, or 117 per cent. for cotton, to \$115,000, or about 17 per cent. for beans.

The greatest rates of increase were for kafir corn and milo maize, the actual increase in 10 years having been from \$379,000 to \$6,491,000, or at the rate of 1613 per cent., and for broom corn, which had an increase from \$489,000 to \$2,889,000, or at the rate of 490 per cent. The bulk of the increases for these two crops was in Oklahoma and Texas, which in 1900 raised 97 per cent. of the kafir corn and milo maize and 94 per cent. of the broom corn raised in the South. Other notable increases

were for tobacco, from \$39,423,000 to \$79,183,000, or 100.8 per cent.; Irish potatoes, from \$14,303,000 to \$29,489,000, or 106.5 per cent.; peanuts, from \$7,221,000 to \$18,257,000, or 152.8 per cent.; rice, from \$6,329,000 to \$16,020,000, or 153 per cent.; hops, from \$232,000 to \$1,136,000, or 346.5 per cent.; rye, from \$811,000 to \$1,634,000, or 101.6 per cent., and buckwheat, from \$349,000 to \$815,000, or 133.5 per cent. In 1909 hemp was grown in but five States—Kentucky, Maryland, Missouri, Oklahoma and Virginia—Kentucky raising \$348,000 worth of the total \$349,000 worth raised. Missouri in that year raised most of the Southern flaxseed,

States to Louisiana, Texas and Arkansas, and a like expansion in peanut growing has been accelerated by the ravages of the boll-weevil in the cotton belt. But while the value of the sweet potatoes, a distinctive Southern crop, increased in 10 years by \$14,550,000, or 84 per cent., the value of Irish potatoes increased \$15,186,000, or 106 per cent. Irish potatoes are one of the crops of early vegetables and small fruits which are shipped in ever-increasing quantity from the South to the leading markets of the rest of the country and representing in the aggregate quite \$100,000,000 a year. Those truck crops, together with apples, peaches, oranges, grape-

crease in the farming population of the South was made the great increase in the value of agricultural products as indicated by the 20 specified crops. The value of farm lands increased in 10 years at a rate nearly seven times the rate of increase in the total population in the South and nearly twelve times the rate of increase of the rural population, and the value of the 20 specified crops increased at a rate nearly five times that of the increase in the total population and something more than eight times that of the rural population. These comparisons outline the story of the South's increasing agricultural prosperity.

road movement to be heard in the South, as the columns of the MANUFACTURERS RECORD testify. Last year more than one-half of the new mileage constructed in the United States was built in the South, and present evidence indicates that more and more mileage will be constructed there as compelled by the progress of agriculture, industry and commerce in this section.

But, to return to consideration of the world's railroad mileage: In 1840, at the end of the first 10 years of railroad history, the world had less than 5000 miles of line by something more than 200 miles; now it has more than 640,000 by over 150 miles, which is practically 135 times as much as it had 70 years ago. The greatest 10 years of railroad building were those between 1880 and 1890, when 152,179 miles were added to the world's total, and the next greatest were those between 1900 and 1910, when 149,092 miles were constructed. No doubt the United States will continue to lead all other countries in railroad construction annually for some years, but when the time comes to develop the great and fertile farming, as well as the rich mineral regions of Siberia, some of the most wonderful railroad building that the world has ever seen will doubtless take place there.

Value of Leading Farm Crops in the South.

States.	Cotton.	Corn.	Hay.	Wheat.	Tobacco.
Alabama	\$74,205,236	\$28,677,032	\$3,357,132	\$120,873	14,892
Arkansas	54,559,503	27,910,044	4,887,139	532,712	40,489
Dist. of Columbia	9,635	25,633	.....	.....	.....
Florida	4,841,581	5,709,000	847,485	132	1,025,476
Georgia	126,035,612	37,079,981	4,056,907	871,494	297,167
Kentucky	223,024	50,449,112	10,306,344	8,812,469	39,868,753
Louisiana	17,324,804	16,480,322	2,433,101	508	42,617
Maryland	23	11,015,298	6,011,749	9,876,480	1,457,112
Mississippi	83,148,805	26,030,376	3,363,647	4,348	3,390
Missouri	3,392,440	107,347,033	33,845,094	20,296,200	676,479
North Carolina	42,066,099	31,286,102	4,781,562	4,420,322	13,847,559
Oklahoma	35,399,356	48,080,554	9,638,648	13,854,322	5,312
South Carolina	80,337,945	20,682,632	3,189,122	385,835	2,123,576
Tennessee	17,966,517	45,819,093	12,617,538	6,913,335	5,061,681
Texas	162,735,041	50,564,618	12,824,433	2,891,061	26,034
Virginia	695,721	28,885,944	10,256,998	8,776,061	12,109,086
West Virginia	14	11,907,261	7,492,747	2,697,141	1,923,180
Total	\$703,591,721	\$547,934,046	\$129,935,279	\$90,083,392	\$79,182,803

States.	Oats.	Sweet potatoes and yams.	Irish potatoes.	Peanuts.	Rice.
Alabama	\$2,117,703	\$3,578,710	\$884,497	\$1,490,654	\$5,179
Arkansas	1,641,752	1,359,669	1,439,991	183,364	1,158,103
Dist. of Columbia	165	13,287	20,231	.....	.....
Florida	443,104	1,231,238	839,691	2,146,862	15,290
Georgia	4,236,625	4,349,806	684,427	2,440,926	145,813
Kentucky	1,216,187	839,454	2,724,043	1,867	.....
Louisiana	250,588	2,357,729	924,311	422,232	8,053,222
Maryland	584,395	483,751	1,782,954	37	.....
Mississippi	822,932	3,073,290	542,011	317,236	5,368
Missouri	10,255,990	567,413	4,470,135	4,040	.....
North Carolina	1,741,561	4,333,297	1,755,413	5,368,826	10,269
Oklahoma	7,172,267	350,553	1,250,052	34,984	.....
South Carolina	3,809,345	2,606,006	609,424	144,211	520,000
Tennessee	2,378,464	1,625,056	1,790,233	386,765	.....
Texas	3,699,634	2,187,799	1,825,150	1,075,110	6,106,323
Virginia	1,069,973	2,681,472	5,667,557	4,239,832	.....
West Virginia	912,388	170,086	2,278,638	168	.....
Total	\$42,891,073	\$31,819,216	\$29,488,758	\$18,257,114	\$16,019,567

States.	Dry peas.	Kafir corn and milo maize.	Broom corn.	Rye.	Buckwheat.	Beans.
Alabama	\$690,270	\$1,611	\$1,562	\$4,314	\$162	\$64,786
Arkansas	376,076	12,074	8,198	6,834	133	6,588
Dist. of Col. ....	.....	.....	.....	135	.....	.....
Florida	98,383	435	.....	7,995	.....	196,398
Georgia	1,204,783	258	694	69,365	446	38,590
Kentucky	84,514	1,588	13,641	202,534	12,028	105,309
Louisiana	252,362	2,092	7,285	236	16	7,315
Maryland	10,593	173	2,006	252,691	90,216	3,342
Mississippi	570,508	706	5,548	459	.....	28,912
Missouri	180,391	152,246	115,243	156,852	16,296	20,354
North Carolina	1,024,228	537	549	269,566	113,577	71,669
Oklahoma	63,857	2,531,036	2,559,235	30,364	370	5,942
South Carolina	1,311,454	132	.....	32,197	101	12,778
Tennessee	245,434	1,093	27,733	129,845	25,078	44,353
Texas	402,854	3,785,463	140,533	3,731	335	26,205
Virginia	127,211	1,032	3,586	344,241	196,196	63,114
West Virginia	3,312	326	3,229	122,258	351,171	81,049
Total	\$6,616,230	\$6,490,802	\$2,889,042	\$1,633,617	\$815,125	\$776,704

which was produced also in Louisiana, Maryland, Oklahoma, Texas, Virginia and West Virginia.

Of the \$1,710,541,000 total value of the 20 crops here considered, \$848,871,000 represented five crops—cotton, \$703,592,000; tobacco, \$79,183,000; sweet potatoes, \$31,819,000; peanuts, \$18,257,000, and rice, \$16,020,000. The South practically monopolizes the growing of cotton, peanuts and rice in this country, and raises most of the tobacco and the sweet potatoes. One of the interesting facts in the exhibit is the increase in the South of crops common to the country. The expansion in rice production, the crop more than doubling in 10 years, has come with a shifting of the center of rice growing in this country from the Southern seaboard

fruit and other fruits, poultry, dairy and live-stock products, go to make up a total annual agricultural output in the South having a value of not less than \$3,000,000,000.

The values by separate States of 16 of the leading Southern crops in 1909 are given in the accompanying tables: Incidentally, a comparison of the rates of increase in Southern population and of the value of farm crops and farm lands is of interest. Between 1900 and 1910 the total population of the South increased 18.3 per cent. Its urban population, that is, the population within towns and cities having more than 2500 inhabitants each, increased 38 per cent. and its rural population increased 10.6 per cent. In the face of this comparatively slight in-

THE WORLD'S RAILROAD MILEAGE.

Although most people are familiar with the fact that the United States is the greatest railroad country in the world, most of those who know it do not also know the large proportion of the total railway mileage there is here. Each year about this time the *Archiv für Eisenbahnwesen*, a German publication, compiles and issues statistics covering the railroads in the whole world, to do which is a considerable task, one which, like the publications of our own Interstate Commerce Commission, is necessarily about 18 months behind the period of time covered by the figures. Thus the world data on railroads that has just been published covers the year 1910, and shows that North America had 283,511 miles; Europe, 207,488 miles; Asia, 63,341 miles; South America, 43,638 miles; Africa, 22,905 miles, and Australasia, 19,275 miles, making a total of 640,158 miles in the whole world, an increase of 14,460 miles over 1900, and 8239 miles of this increase was in North and South America and Australasia.

Figures from Poor's Manual show that the total railroad mileage in the United States at the end of 1910 was 242,107 miles, or very nearly 38 per cent. of the total in all countries. The total in North America was more than 44 per cent. of the world's total. Moreover, North America had more miles of railroad than Europe and Asia combined by something like 13,000 miles, and the United States had more miles of line than Europe and Africa together. Again, the United States had more miles of railroad than Asia, Africa, South America and Australasia put together, their total being only 149,160 miles, as against the United States' total of 242,107 miles. Furthermore, the United States mileage exceeds that of Europe by more than 16½ per cent., notwithstanding that Europe's population is four times as great as that of the United States, and the mileage of North America exceeds that of Europe by more than 36½ per cent.

In spite of the fact that we are so liberally supplied with railroads as compared with other countries, taking into the consideration the matter of population, it is recognized that the United States needs much more new railroad and extensive double-tracking of existing roads, besides other necessary betterments to the lines which it possesses. The ceaseless activity with which promoters and capitalists seek new routes for various lines is splendid evidence of the intense desire of Americans to possess ample facilities for intercommunication everywhere in their land. New developments are to be heard of on all sides from the Atlantic to the Pacific and from the Lakes to the Gulf. Especially is news of the

MONEY IN WOOD WASTE.

Marvelous as has been the advance in Southern development throughout the past quarter of a century, its progress challenging the surprise and admiration of the world, it is well within conservative truth to state that in the waste places and the waste products of the South of today there are opportunities for well-nigh a duplication of all the development that has occurred to date. When the millions of acres of overflowed, swamp and wet lands have been drained and put into the intensive cultivation for which they are pre-eminently fitted; when the other millions of denuded, idle, cut-over timber lands have been cleared and put in orchards, farms, cattle pastures and truck farms; when the neglected, mishandled old lands of various long-settled communities shall have been restored to their normal fertility; when the largely unused water-powers of the South's innumerable streams have been fully utilized; when the refuse of the saw-mills and the wood-working plants has been rescued from the fate to which until lately the cottonseed of the South was consigned, then will be added untold billions to the wealth of the South, with all the blessings and benefits that come from an actively employed and highly prosperous community.

One of the most interesting and important of the several efforts being made in the direction of the utilization of waste is that which looks to the saving of timber refuse. Wrapping paper, box board, ethyl alcohol and other products are being made from material heretofore burned up at the mills of the South. Development of these industries is only getting started, but the start made is an encouraging one, with promise of more rapid and extensive growth in the next succeeding years.

Much experimentation has been undertaken, not always scientifically and often financially disastrous. But following the usual perils of pioneering and the lack of universal rewards, the mistakes of the past become the guideposts for the future, and projects of many kinds now find available a fund

of asce
stratio
cessful
An i
conditi
made i
produc
derived
gaze
vario
the old
over l
able a
stimul
stumps
are no
In a
TURS
of Atla
compa
utilizat
compa
that cu
reason
clearin
tion of
tive de
these l
over p
stumps
Other
utilizat
possible
be poss
the cut

ENOR

We a
United
000,000
1 havin
tons a
output
seems t
tive re
remarks
that ra
ments
ought t
ness of
active.

The r
any cal
1910.
over 10
when t
tons. T
when t
boom, v
showed
tons, w
781,361
having
furnace
part of
there w
tons as
for 1908

If th
future
activity
larged
would s
the den
very qu
present
light of
esting t
of iron
boom p
tainly l
called a
it is th
running
of 5,000
than th
2,000,000
year of
great to
steel is

of ascertained fact and scientific demonstration which give the basis for successful commercial operation.

An interesting instance of the changed conditions is the progress now being made in the utilization of waste wood products. Outside of the benefits to be derived by companies which may engage in the recovery of turpentine, tar, various acids, and also charcoal, from the old pine stumps of Southern cut-over lands, there is an almost illimitable advantage to the country in the stimulus to be given the removal of the stumps from the millions of acres which are now only treeless, desolate wastes.

In a recent issue of the MANUFACTURERS RECORD Mr. Charles J. Haden of Atlanta told about the success of the company operating in Brunswick in the utilization of pine stumps and how that company is buying all available stumps that can be delivered to Brunswick at a reasonable freight rate. Following the clearing up of the land by the utilization of these stumps, there is an active demand from Western farmers for these lands at a considerable advance over prices for lands from which the stumps have not been taken.

Other companies are at work in the utilization of pine stumps, and it is possible that in the near future it will be possible to clear up a great deal of the cut-over pine land of the South.

ENORMOUS OUTPUT AND DEMAND FOR IRON.

We are now producing pig-iron in the United States at the rate of about 29,000,000 tons a year, the output on June 1 having been on the basis of 81,000 tons a day. Notwithstanding this heavy output, the production of iron and steel seems to be running short of consumptive requirements. This is the more remarkable when it is borne in mind that railroad construction and betterments are very much less than they ought to be, and that the general business of the country is not especially active.

The record production of pig-iron in any calendar year is 27,303,565 tons in 1910. This was an increase of a little over 100 per cent. compared with 1900, when the total output was 13,789,285 tons. The year before the panic, 1906, when the iron trade was on a great boom, with steadily advancing prices, showed a total output of 25,307,000 tons, while in 1907 the output was 25,781,361 tons, the panic of that year not having produced any cutting down of furnace output until during the latter part of the year. In 1908, however, there was a drop of nearly 10,000,000 tons as compared with 1907, the output for 1908 being 15,936,018 tons.

If there should come in the early future a general revival of railroad activity in construction work and enlarged demand for rolling stock, this would so stimulate other interests that the demand for iron and steel would very quickly be far greater than the present remarkable output. In the light of this situation it becomes interesting to speculate on what the output of iron and steel will be during the next boom period, for we shall just as certainly have what for a better name is called a boom period sooner or later as it is that the world will stand. We are running now at the rate of an output of 5,000,000 or 6,000,000 tons, larger than the total yield of 1911, and about 2,000,000 tons larger than the record year of 1910. Notwithstanding these great totals, the demand for iron and steel is so large that prices have ad-

vanced and stocks have declined, and the situation is one of very great interest to every business man in the country.

GLASS FACTORY NEEDED IN SOUTH.

There is much need in the Central South for a glass factory. The rate of freight on glass from the North and West is a serious handicap. Owing to the fact that the freight on glazed sash is so much less than on glass itself, the former being handled by the railroads at about one-half of the cost of the latter, many open or unglazed sash are shipped from central points in the South to points around Louisville, Cincinnati and Chicago, and are there glazed and reshipped to the South, the difference in freight between glazed sash and glass justifying such expensive handling as this. The establishment of glass factories in the Central South would change this situation to the benefit of the railroads, as well as sashmakers and builders. It has been suggested that Southern sash factories and Southern railroads might very wisely co-operate in securing the establishment somewhere in the Central South of one or more glass factories.

A TOWN WHICH FORBIDS BILL-POSTING.

There is one town in the South—Tryon, N. C.—which, to its everlasting credit, permits no bill-posting nor painting on rocks within the city limits. It is a town of rare beauty of location, surrounded by some of the great mountain ranges of Western Carolina, and its people have been wise enough to determine that the beauty of the scenery shall not be marred by the hideous bill-posting and board signs and rock painting which disgrace civilization in so many sections. At Tryon no impertinent question as to the condition of your liver stares you in the face as it does from every barn and rock throughout much of the country. Here the beauty of nature is not marred by hideous signs advising you to swallow some stomach-killing "soft" drink, no questions as to your various organs and how to benefit them smack you in the face. If any boycott could be just, the American people ought to boycott every concern which mars the beauty of nature by hideous advertisements on almost every great jutting rock along much-traveled roads or which forces you to read its story smeared across every barn whose owner would sell his bald head as an advertising space if anybody would buy it. Tryon has done well. If there are other places in the South which have a similar law and enforce it, our columns are wide open to them to tell the story.

THE COTTON MOVEMENT.

In his report for June 28, Col. Henry G. Hester, secretary of the New Orleans Cotton Exchange, shows that the amount of cotton brought into sight during 302 days of the present season was 15,209,231 bales, an increase over the same period last year of 3,570,773 bales. The exports were 10,227,586 bales, an increase of 2,915,540 bales. The takings were, by Northern spinners, 2,333,072 bales, an increase of 287,006 bales; by Southern spinners, 2,424,625 bales, an increase of 245,780 bales.

The dairy instruction car which the land and industrial department of the Southern Railway is running over the lines of that system will make 22 stops at Georgia points this month. Experts on the car will give illustrated lectures on Southern dairy problems.

Woodrow Wilson an Optimist for the South.

[From the Thirtieth Anniversary Issue of the MANUFACTURERS RECORD, February 22, 1912.]

No one who knows the South can look forward to her future without the most confident expectation of an extraordinary development. The character of her people, of her resources and of her climate assures a development which will be one of the most notable features of the growth of America in the twentieth century. The past thirty years will be but an imperfect indication of what the next thirty will bring forth.

Construction Activity in the South.

MORE THAN 30,000 ITEMS PUBLISHED IN SIX MONTHS ABOUT INDUSTRIAL, RAILROAD AND FINANCIAL OPERATIONS.

More than 30,000 brief items regarding Southern and Southwestern general industrial developments, building operations, railroad plans and progress, financial corporations and securities, have been published in the MANUFACTURERS RECORD since January 1. The amount of capital represented runs far up into the millions. In the last six months we have mentioned hydro-electric enterprises alone definitely organized or announced representing a capitalization of largely over \$200,000,000, and having in view the ultimate development of upwards of 1,500,000 horse-power. These include the \$55,000,000 company organized by some of the strongest financial interests in London for the development of water-powers in Alabama which have been purchased and for the utilization of which surveys are now being made, having an aggregate capacity of over 400,000 horse-power. The development of these Alabama powers will, of course, require the work of some years, and represent an ultimate outlay of \$40,000,000 or \$50,000,000; but for the present definite plans are under way based on the spending of \$10,000,000, for which securities were issued a few months ago in London and largely oversubscribed. Included in the enterprises mentioned during the last six months are also the operations of a \$57,000,000 company, likewise backed in part by English capital, as well as by strong Canadian investors, which is now spending about \$10,000,000 at Tallulah Falls, Georgia, for the development of 90,000 hydro-electric horse-power. This company, controlling street railways and illuminating plants, will carry out large operations over a considerable portion of Georgia, developing other water-powers and building interurban lines. Western and Eastern capitalists have combined in the development of water-powers and street railways in Tennessee, which will represent ultimately still larger capitalization than either the English company operating in Alabama or the big \$57,000,000 company at work in Georgia.

During the six months from January 1 to June 30 the MANUFACTURERS RECORD has published 142 items dealing with water-power developments in the South, and the few big enterprises mentioned are indicative of the extent of the operations which are being carried on throughout that section for water-power utilization. In the same period we have published nearly 2000 items dealing with miscellaneous factories and enterprises, 1211 items relating to road and street construction work, and 435 dealing with sewer construction. The activity existing throughout the South in municipal improvements is indicated in these 435 items bearing on sewer construction, and 633 items relating to water-works, and 541 items giving details in regard to city and county buildings, of which 145 items related to the building of courthouses. Remarkable activity has been shown in the building of schools, as illustrated in 1351 items about school buildings; in the construction of churches, about which we have had 635 items; in the erection of bank and office buildings, with 778 items, while hotel items have numbered 488, apartment-houses 758, warehouses 454 and railroad stations 243.

These illustrations of the life and hustle shown in every line of construction work are indications of the great increase in the wealth of the South, which makes possible such general activity covering so wide a range of industries. No one can study the facts here presented without being impressed with the vast number of opportunities thus revealed to those interested in any and all phases of manufactures, municipal betterments, electric and water-power operations, building and railroad construction, the establishment of banks, the issuing of bonds and the varied operations of rapidly expanding enterprise. Here are presented opportunities for the creation of business which must appeal mightily to every business man, whatever may be his line of work, whether that of the financier, or the engineer, or the contractor, the machinery manufacturer or seller, or all others who have brains and energy to utilize such possibilities as are here opened to them.

Under leading industries the accompanying table summarizes these items as reported in the MANUFACTURERS RECORD weekly and in our *Daily Bulletin* for April, May and June. The fourth column gives totals for the same three months, while the fifth and last column shows the entire number of such items published by us since January 1:

SIX MONTHS' SOUTHERN CONSTRUCTION ITEMS.

	April.	May.	June.	3 Months' Total (April, May and June.)	Total for 6 Months (Jan., Feb. and Mar. previously shown in 3 Months' Summary)
INDUSTRIAL AND DEVELOPMENTAL.					
Bridges, Culverts, Viaducts.....	57	73	63	193	368
Canning and Packing Plants.....	31	37	17	85	212
Clayworking Plants.....	19	14	7	40	86
Coal Mines and Coke Ovens.....	31	40	30	101	205
Concrete and Cement Plants.....	7	4	4	15	43
Cotton Compresses and Gins.....	23	47	49	119	184
Cottonseed-Oil Mills.....	13	30	21	64	89
Drainage and Irrigation.....	34	36	26	96	233
Electric Plants.....	67	99	80	246	527
Fertilizer Factories.....	17	9	10	36	71
Flour, Feed and Meal Mills.....	15	18	25	58	114
Foundry and Machine Plants.....	24	43	33	100	254
Gas and Oil Developments.....	46	51	49	146	293
Ice and Cold-Storage Plants.....	52	35	39	126	316
Iron and Steel Developments.....	5	7	7	19	52
Land Developments.....	54	88	64	206	525
Lumber Manufacturing.....	77	73	51	201	469
Metal-Working Plants.....	8	9	13	30	59
Mining.....	30	51	53	134	259
Miscellaneous Construction.....	34	40	38	112	225
Miscellaneous Enterprises.....	87	125	73	285	738
Miscellaneous Factories.....	186	195	151	532	1231
Motors and Garages.....	49	44	28	121	247
Railway Shops, Terminals, Roundhouses, etc.	15	17	9	41	104
Road and Street Work.....	219	255	183	657	1211
Sewer Construction.....	74	87	76	237	435
Telephone Systems.....	40	43	18	101	209
Textile Mills.....	44	48	46	138	249
Water-Power Developments.....	33	25	23	81	142
Water-Works.....	111	129	90	330	633
Wood-Working Plants.....	54	64	42	160	335
BUILDINGS.					
Apartments.....	176	182	107	465	758
Association and Fraternal.....	47	59	47	153	293
Bank and Office.....	132	159	106	397	778
Churches.....	115	130	91	336	655
City and County.....	75	81	65	221	396
Courthouses.....	25	30	23	78	145
Dwellings.....	518	677	542	1737	2865
Government and State.....	37	41	30	108	191
Hotels.....	88	85	63	236	488
Miscellaneous.....	98	123	87	308	595
Railway Stations.....	29	48	31	108	245
Schools.....	195	287	290	772	1351
Stores.....	262	346	275	883	1726
Theaters.....	26	35	24	85	203
Warehouses.....	76	91	72	239	454
RAILWAYS.					
Steam.....	175	230	189	594	1286
Street.....	26	48	34	108	190
FINANCIAL.					
Corporations.....	151	207	144	502	1103
New Securities.....	395	421	288	1104	2187
Burned, etc.....	119	191	122	432	1216
Machinery, Proposals and Supplies Wanted..	527	625	471	1623	3395
Total.....	4848	5932	4519	15,299	30,638

Of the specific requests received by us asking for information as to machinery and supplies wanted there were 3395 during the six months' period, and among the foreign countries represented in these inquiries, indicative of how widely the MANUFACTURERS RECORD is read throughout the world, were: Cuba, Porto Rico, Bahama Islands, Panama, South America, Mexico, England, France, Belgium, Italy, Australia, Holland, Bulgaria, Austro-Hungary, Philippines, Japan, Russia, Greece, India and Turkey.

GAS PRODUCER PRACTICE.

Its Important Part in the Conservation of Fuels.

In answer to a constantly-increasing demand for information concerning the internal combustion engine and the gas producer, the United States Bureau of Mines has issued Technical Paper No. 9, "The Status of the Gas Producer and of the Internal Combustion Engine in the Utilization of Fuels." Robert H. Fernald, the consulting engineer of the bureau on gas producer practice, who is the author of the paper, has the following to say in the introduction:

"Investigations into the possibility of generating producer gas for power purposes in a commercial way from the various mineral fuels of the country has been

carried on for some time by the United States Government. These investigations have been associated with steaming, briquetting, coking and other tests, all of which supplemented an examination into the nature, extent and distribution of the fuels used. The tests have been made with carefully-selected representative samples and carload lots of coal, lignite, etc., procured especially for the purpose by experienced collectors.

"In New England, for example, marked economies can be gained by a general use of the gas producer, and, moreover, these economies would be sufficient to overcome the handicap placed on industries there by the transportation charges on coal. The development of power in the New England States through the efficient method suggested by these in-

vestigations would mean a yearly saving of many millions of dollars.

"Many States of the West that have no good coal are also greatly benefited by the investigations, which have shown the adaptability of the gas producer for the utilization of low-grade coal, lignite, peat, etc. As mined, these fuels cannot be used in boiler furnaces, and will not bear long transportation, but the gas producer makes them of potential value. Thus the gas producer is an agency of conservation. It helps to keep the low-grade coals from being permanently lost by being left in the mines in such condition as to make their future recovery impossible. In States in which deposits of low-grade coal, lignite and peat are found the present cost of power, as developed in steam plants with coal that has been shipped a considerable distance, can be materially reduced by placing producer plants at the mines or bogs, so as to utilize these low-grade fuels without cost of shipment by generating electric current which can be easily transmitted to desired points within a wide radius.

"The tests in the gas producer have shown that many fuels of so low grade as to be practically valueless for steaming purposes, such as slack coal, bone coal and lignite, may be economically converted into producer gas and may thus generate sufficient power to render them of high commercial value.

"It is estimated that on an average each coal tested in the producer-gas plant developed two and one-half times the power that it would develop in the ordinary steam-boiler plant.

"It was found that the low-grade lignite of North Dakota developed as much power when converted into producer gas as did the best West Virginia bituminous coals burned under the steam boiler.

"Investigations into the waste of coal in mining have shown that it probably aggregates 250,000,000 to 300,000,000 tons yearly, of which at least one-half might be saved. It has been demonstrated that the low-grade coals, high in sulphur and ash, now left underground, can be used economically in the gas producer for the ultimate production of power, heat and light, and should, therefore, be mined at the same time as the high-grade coal.

"In line with this conservation of fuel resources it is interesting to note that one estimate states that the United States Steel Corporation alone, through installations of blast furnace gas engines to displace the old equipment, saves approximately 1,000,000 tons of coal per annum.

"The investigations also show that the general use of gas producers for the development of power means the elimination practically of the smoke nuisance. This result is especially important in cities that are compelled to use bituminous coals.

"The great saving in fuel obtained through the gas producer has led to the installation within the last decade of several hundred of these power plants throughout the United States. These producer plants are practically smokeless during operation.

"As a smoke preventer, the gas producer is one of the most efficient devices on the market, and, furthermore, it reduces the fuel consumption not 10 or 15 per cent., as claimed for the ordinary smoke-preventing device offered for use in steam plants, but 50 to 60 per cent.

"The establishment of producer-gas plants at the mines and the distribution of electric energy or gas over large areas will also tend to eliminate smoke. When a large percentage of the small, isolated power and heating plants and all steam locomotives have been removed from the larger cities, the atmosphere of these cities

will be much clearer and heavy financial losses directly traceable to smoke will be eliminated."

Copies of this technical paper may be obtained by addressing the Director of the Bureau of Mines, Washington, D. C.

COAL BY SPECIFICATIONS.

Results of Government Purchases by This Method.

Manufacturers and others who use coal in considerable quantity will be interested in Bulletin 41 of the United States Bureau of Mines on the subject, "Government Coal Purchases Under Specifications." This bulletin, which has just come from the Public Printer, was prepared by George S. Pope, engineer in charge of fuel inspection for the Government, and contains a chapter on the fuel inspection laboratory of the bureau by Joseph D. Davis, chemist in charge. The bulletin is the fourth of a series showing the results of the purchase of coal by the Government. Mr. Pope, in his introductory, says:

"The purchase of coal on the dealer's statement as to quality or on the reputation of the mine or district producing the coal is gradually being discontinued. At present most coal-purchasing contracts make definite provision regarding the desired heating value of a coal and the composition as shown by analysis. The heating value is usually expressed in British thermal units, and the composition specified is that shown by proximate analysis. The price to be paid for delivered coal is made to depend on whether the analyses and heating value of samples representing the delivery shows the quality to be above or below the quality set forth in the contract.

"Large coal consumers are beginning to appreciate more and more the importance of the cost of power as a factor in the cost of producing a finished article. The endeavor to increase the efficiency and the economical operation of a power-plant calls for an intimate knowledge of the quality of the coal being used. The purchase of coal under specifications insures the purchaser getting what he pays for and the coal being of the quality guaranteed. In addition, the analyses and tests of the delivered coal furnish data whereby the power-plant results can be comprehensively studied and a continuous check maintained on the conditions of operation.

"The replies to a circular-letter sent to the Mayor of every city of over 100,000 population in the United States brought out the fact that about 55 per cent. of the cities replying purchase coal under specifications, many of which are similar to those used by the Government. A great many industrial concerns are likewise purchasing coal under specifications. The numerous requests received by the Bureau of Mines for authentic information concerning purchases of coal under specifications, or according to its heating value, attest the growing interest in the subject.

"The purchase of coal on a specification basis is an important step toward the conservation of the mineral resources of the nation, for it results in the increased use of the lower grades of coal. The poorer grades find a market by competing with the better grades, not as to the price per ton, but as to the cost of an equal number of heat units.

"The purpose of this paper is to explain in general terms the methods that the Government has found most satisfactory for the purchase of a large part of its coal supply, including the consideration of bids, the awarding of contracts and the analyzing of samples on which the price corrections are based."

Cement Industry in 1911.

The total quantity of Portland, natural and puzzolan cements produced in the United States during 1911 was 79,547,958 barrels, valued at \$66,705,136, according to statistics prepared by Ernest F. Burchard of the United States Geological Survey. Compared with 1910, when the production was 77,785,141 barrels, valued at \$68,752,092, the year 1911 showed an increase of 1,762,817 barrels, or 2.27 per cent. in quantity, the smallest increase recorded in the past 13 years, but a decrease of \$2,046,956, or 1.48 per cent. in value.

The total production of Portland cement in the United States in 1911, as reported to the United States Geological Survey, was 78,528,637 barrels, valued at \$66,248,817. This quantity reduced to tons is equivalent to 13,321,822 long tons, valued at \$4.97 per ton. As compared with the production of Portland cement for 1910, which was 76,549,951 barrels, valued at \$68,205,800, the output for 1911 represents an increase in quantity of 1,978,686 barrels, or 2.58 per cent., and a decrease in value of \$1,956,983, or 2.87 per cent. The average price per barrel in 1911, according to the figures reported to the Survey, was a trifle less than 84.4 cents, as compared with 89.1 cents in 1910. In the average price for the country is included the value of 135,775 barrels of white Portland cement, which sold at an average price of about \$2.50 per barrel. In the following table Portland cement production is given by States or by groups of States where there are less than three producers in a single State.

Portland Cement Production, 1910.

State.	Producing plants.	Quantity (barrels).	Value.
Pennsylvania.....	25	26,675,978	\$19,551,268
Indiana.....	5	7,219,199	6,487,598
Kansas.....	11	5,655,808	5,359,408
California.....	7	6,385,588	8,843,210
Washington.....	2	4,459,450	4,119,612
Illinois.....	5	4,455,589	3,858,088
Missouri.....	4	4,184,698	3,067,265
New Jersey.....	12	3,687,719	3,378,940
Michigan.....	8	3,296,350	2,906,551
Texas.....	4	2,287,445	2,664,846
Oklahoma.....	2	2,010,379	1,986,694
Iowa.....	2	1,527,670	1,279,717
Kentucky.....	1	1,481,359	1,323,495
West Virginia.....	1	1,306,158	830,218
Ohio.....	2	1,204,761	1,543,620
Georgia.....	1	811,800	1,005,960
Tennessee.....	3	76,549,951	\$68,205,800
Maryland.....	1		
Virginia.....	2		
Arizona.....	1		
Colorado.....	2		
Montana.....	1		
Utah.....	3		
Total.....	111		

Portland Cement Production, 1911.

State.	Producing plants.	Quantity (barrels).	Value.
Pennsylvania.....	25	26,864,679	\$19,258,253
Indiana.....	5	7,407,839	6,937,241
California.....	8	6,317,701	8,737,150
Kansas.....	12	4,871,903	3,725,108
Illinois.....	5	4,582,341	3,583,301
New Jersey.....	3	4,411,890	3,259,528
Missouri.....	4	4,114,859	3,349,312
Michigan.....	11	3,686,716	3,024,676
New York.....	7	3,314,217	2,669,194
Iowa.....	3	1,952,599	1,881,253
Ohio.....	5	1,451,852	1,228,680
Washington.....	3	980,572	1,496,807
Utah.....	3	662,849	827,523
Texas.....	4	2,438,492	2,541,449
Oklahoma.....	2	1,981,341	1,590,438
Tennessee.....	2	1,162,081	1,272,317
West Virginia.....	1	1,487,753	1,084,315
Kentucky.....	1	858,969	762,272
Virginia.....	2		
Maryland.....	2		
Colorado.....	2		
Montana.....	1		
Alabama.....	3		
Georgia.....	2		
Total.....	115	78,528,637	\$66,248,817

The United States has been divided into 11 subdivisions, based on the grouping of plants in direct relation to the trade territory covered by each group. This grouping is also logical when the raw materials are considered. For instance, the plants in Northeastern Indiana and Northern Kentucky, all of which are near Ohio River and all of which use hard limestone, are grouped together. Plants near Chicago, whether in Illinois or Indiana, are grouped together because of their nearly

equal freight rates. The Southeastern States, in which plants use mostly Appalachian limestone, are grouped together, and central Texas is included in the group of Great Plains States. Plants between Missouri River and Mississippi River in Missouri and Iowa are grouped together, and the plants in the Rocky Mountain States and Western Texas are considered in a group intermediate between the Great Plains and the Pacific Coast.

According to reports made to the United States Geological Survey by the manufacturers, the average price of Portland cement per barrel by districts in 1911 in bulk at the mills ranged between 71.5 cents in the Lehigh district and \$1.406 on the Pacific coast, as compared with 72.9 cents and \$1.385 for the same districts in 1910. The average price for the whole country was 84.4 cents a barrel. The lowest individual average price reported to the Survey was 60 cents per barrel, and many mills sold cement as low as 65 to 67 cents, not only in the East, but in the middle West. The highest figure reported was \$1.70 per barrel from a plant in the Rocky Mountain district.

The year opened with the prices on the downward grade, and there were only temporary revivals. Taken as a whole, and judged by the personal testimony of representative cement manufacturers from all States east of the Rocky Mountains, prices appear to have been very unsatisfactory.

In 1911, 115 plants reported a production of Portland cement, as compared with

balanced numerically the smaller kilns which were shut down, giving a total of 539 kilns 100 feet or more in length in 1911, as against 473 kilns in 1910. The 125-foot kiln is apparently still the most common length for modern kilns. From the reports received it is apparent that the total annual kiln capacity of the country in 1911, allowing for reasonable loss of time for repairs, should have been about 112,500,000 barrels, and that the total production of 78,528,637 barrels represented about 70 per cent. of the total capacity. As compared with the estimated total kiln capacity in 1910, which was 97,670,000 barrels of Portland cement, the capacity in 1911 increased 14,830,000 barrels, or far in excess of the actual increase in production. The apparent average output per kiln in 1911 was about 85,730 barrels, as compared with 84,867 barrels in 1910. This increase is explained by the greater average size of the kilns operated during 1911. According to the mill reports, all but about

30 of the producing plants in the United States were shut down part of the time for causes other than repairs for periods ranging from 2 to 10 months. The following nine new plants reported their first commercial output in 1911: Golden State Portland Cement Co., Oro Grande, Cal.; Piedmont Portland Cement Co., Portland, Ga.; Lehigh Portland Cement Co., Mason City, Iowa; Chanute Cement Co., Chanute, Kans.; Tidewater Portland Cement Co., Union Bridge, Md.; Michigan Portland Cement Co., Chelsea, Mich.; Knickerbocker Portland Cement Co., Hudson, N. Y.; Clinchfield Portland Cement Corporation, Kingsport, Tenn., and Inland Portland Cement Co., Metaline Falls, Wash.

Below are summarized statistics for 1910 and 1911 for each district with regard to the number of active plants, the total production in 1910 and 1911, the percentage of gain and loss in 1911 and the average price per barrel:

Production of Portland Cement in 1910 by Commercial Districts.

District.	Active plants, 1910.	Production, 1910, Barrels.	Average factory price, per barrel.
New Jersey and eastern Pennsylvania (Lehigh District).....	24	26,315,359	\$0.729
New York.....	8	3,296,350	.882
Ohio and western Pennsylvania.....	9	6,072,967	.776
Michigan and northeastern Indiana.....	14	4,524,591	.921
Kentucky and southern Indiana.....	3	2,824,832	.799
Illinois and northwestern Indiana.....	6	8,376,450	.940
Southeastern States (Maryland, Virginia, West Virginia, Tennessee, Georgia and Alabama).....	8	3,071,099	.704
Iowa and Missouri.....	6	5,722,971	.916
Great Plains States (Kansas, Oklahoma and central Texas).....	16	7,723,253	.996
Rocky Mountain States (Colorado, Utah, Montana, Arizona and western Texas).....	8	2,236,561	1.288
Pacific Coast States (California and Washington).....	8	6,385,588	1.385
Total.....	111	76,549,951	\$0.891

Production of Portland Cement in 1911 by Commercial Districts.

District.	Active plants, 1911.	Production, 1911, Barrels.	Change, Per Ct.	Average factory price, per barrel.
New Jersey and eastern Pennsylvania (Lehigh District).....	24	25,972,106	- 1.30	\$0.715
New York.....	7	3,314,217	+ 1.54	.805
Ohio and western Pennsylvania.....	9	6,756,313	+ 11.25	.766
Michigan and northeastern Indiana.....	13	4,519,726	- .11	.827
Kentucky and southern Indiana.....	3	2,818,820	- .31	.793
Illinois and northwestern Indiana.....	6	8,617,341	+ 2.88	.791
Southeastern States (Maryland, Virginia, West Virginia, Tennessee, Georgia and Alabama).....	11	4,049,063	+ 31.85	.793
Iowa and Missouri.....	7	6,067,449	+ 6.02	.862
Great Plains States (Kansas, Oklahoma and central Texas).....	17	7,010,396	- 5.23	.834
Rocky Mountain States (Colorado, Utah, Montana, Arizona and western Texas).....	7	2,124,930	- 4.99	1.186
Pacific Coast States (California and Washington).....	11	7,278,274	+ 13.98	1.406
Total.....	115	78,528,637	+ 2.58	.844

TO DEVELOP PARR SHOALS.

Columbia Company to Build Hydro-Electric Plant Furnishing 25,000 Horse-Power.

Parr Shoals, on Broad River, about 20 miles above Columbia, S. C., will be developed to furnish 25,000 electrical horse-power. This development had previously been planned by the Parr Shoals Power Co., controlled by A. G. Furman and others of Greenville, who have sold their interests to Edwin W. Robertson, president of the Columbia Railway, Gas & Electric Co., and associates. These purchasers have reorganized the company, and its new secretary, R. Charlton Wright, who is also secretary of the Columbia corporation named, sends the MANUFACTURERS RECORD a statement, in part, as follows:

"This project is the construction of a great hydro-electric plant which is expected to develop 25,000 horse-power of electrical power. Already a force of engineers is on the scene, surveys are being pushed forward and the site is being prepared. Construction gangs are being organized. The engineering and constructing contracts have been awarded to the well-known engineering firm of J. G. White & Co. of New York, who have been in charge of the new work done in Columbia during the past year by the Columbia Railway, Gas & Electric Co. Engineers have been quietly at work on the river for some time now, making their surveys and soundings, but as there have been numerous surveys hitherto of Parr

Shoals, the renewed activity was not at first thought to import anything, but new interests have acquired the property, and its development is now assured. A concrete dam is to be constructed, about 34 feet in height across the Broad River, with a power-house where the power will be developed directly from the pond by turbines and the most modern and complete electrical equipment. Transmission lines will be run from the power-house to Columbia to bring the electrical current into the city.

"The officers of the reorganized company are Edwin W. Robertson, president and treasurer; Guy K. Dustin, vice-president and general manager; William Elliott, counsel; G. M. Berry, assistant treasurer; R. Charlton Wright, secretary; Chas. M. Tew, auditor, all of Columbia."

WATER-POWER DEVELOPMENT.

Additional 80,000 Horse-Power Reported Planned by Ozark Water & Power Co.

Besides its 15,000 horse-power development recently contracted for and another of 15,000 horse-power planned, both on the White River, near Branson, Mo., the Ozark Water & Power Co. is said to be arranging for additional and more extensive hydro-electric construction in Missouri. A dispatch from Hollister refers to these further plans, in part, as follows:

"Information has been received here that the Standish power project on James River, 20 miles northwest, has been taken

over by the Ozark Water & Power Co., and that a third dam and storage reservoir will be built in the 35-mile bend of James River. This announcement, following closely on the introduction in Congress of a bill to dam White River three miles above Hollister, indicates far more extensive plans for the development of power in this vicinity than was at first understood. It is now apparent where the water necessary to keep turning the eight 3800 kilowatt units in the big powerhouse at Powersite will come from during summer, when White River is low. That there will be more than two storage reservoirs is certain. The engineers claim there will be a succession of reservoirs extending from the dam below Hollister, transforming the river into a series of locks back as far as Galena. If this is true, from Galena to the dam at Powersite will be a continuous navigable stretch of water over 140 miles long. There will be but one powerhouse. This will be constructed at Powersite. When the 40,000 electric horse-power of this plant has found a market, another powerhouse and dam will likely be built at Moore's Ferry, 25 miles further down stream and seven miles southeast of Hollister. Here 40,000 horsepower more may be obtained, with the same water that turns the wheels at Powersite.

"It is a tremendous scheme for hydro-electric power now worked out in this vicinity, and few can realize the wonderful changes that will be the result in these hills before a decade has passed. One of the engineers in charge of the surveys recently remarked that the possibilities for power in the White River were unexcelled by any similar stream in the United States, and that with proper conservation of the flood waters, by means of storage reservoirs, over 200,000 horsepower would be generated on the White and James rivers, and he added that it would be done in 10 years.

"The effect of this vast power on the Ozarks will be to transform the very nature of the country and of the people who inhabit it. The dependence of the Southern Ozarks has heretofore been in stock-raising. Much of the country has been too rough for farming and too remote for horticulture."

Holman & Laird of St. Louis are the company's engineers, and the Doherty Operating Co. of New York is its manager.

FOR MUSKOGEE'S ADVANTAGE.

Hydro-Electric Development and Railroad Shops Planned.

[Special Cor. Manufacturers Record.]

Chicago, June 29.

Information about some very interesting developments at Muskogee, Okla., has been given me by W. H. Rosecrans of the W. H. Rosecrans Engineering Co., with offices at Chicago and New York. Mr. Rosecrans is consulting engineer of water-power development and railroad shops, both of which are about to be begun on an extensive scale at Muskogee.

The water-power development is a purely local enterprise, being financed by some 40 of the financial and commercial leaders of Muskogee. The object is to provide cheap power for present industries and furnish an inducement for other industries to locate there. Maximum 20,000 horse-power will be developed, 9000 horse-power initial, in three 3000 horse-power units. An available head of 40 feet will be obtained at the Fort Gibson plant by a diversion dam and a head race, cutting off a 12-mile bend of the Arkansas River. By installing two different-sized water-wheels on the same

vertical shaft, a uniform power out and speed of wheels will be maintained during flood and low-water stages.

A second development will be on Carey's Island, in Grand River, with a 25-foot head, and a third on the Illinois River, with 50-foot head.

Careful estimates based on records of rainfall and drainage area demonstrate that a reliable flow of water may be secured by building a storage reservoir of 26,000 acre feet capacity, with several smaller storage reservoirs, so that no auxiliary steam plant will be necessary. There is 12,500 square miles of drainage area, for which the average annual rainfall is 39 inches. There is an average minimum flow of 2500 second feet and maximum average flow of 134,000 second feet.

It is estimated that 8000 of the developed horse-power will be used at Muskogee for lighting plants, street railroads and for flour mills, clay-products factory, carriage and wagon factory, hardwood novelty works, cottonseed-oil mills and other industries already at Muskogee. The census of 1910 gave the city 26,800 population. Today the population of city and suburbs is estimated at over 30,000. It is the expectation that a very considerable industrial growth will be stimulated by the development of the water-power. It is intended to begin construction within a month, and it is designed to complete the project within a year. Officers of the Muskogee Water Power Co. are: President, S. P. Mann; vice-president, J. F. Darby; secretary, C. W. Reid; treasurer, W. H. Jordan. Directors—A. C. Trumbo, D. W. Fink, Franklin Miller, W. D. Sayer, P. W. Samuels, all of Muskogee.

The shops to be built at Muskogee are those of the Missouri, Oklahoma & Gulf Railroad, of which Wm. Kenefick of Kansas City, a conspicuously successful financier and constructor, is president, and which is owned by a French-American syndicate. The shops are to cost about \$400,000, and will be as complete and up to date as any in the country. They will be largely of steel and brick construction, with concrete foundations. They will include machine and repair shops for repairing locomotives, passenger and freight cars; also boiler shops, transfer table, the largest in the country, and road engine-house. This latter is a novelty in this country, and is an interesting outgrowth of the development of aerial navigation. The idea originated in France, where it was pointed out by G. Legat, a noted French engineer, that a man in a flying-machine could work havoc with a whole roundhouse full of engines by dropping a few pounds of high explosives in the center of the building. Instead of a roundhouse, therefore, there will be an engine-house, and, as a number of Mallet engines are in use on this road, it will be of large size—220x94 feet—with parallel tracks inside and shuttle ladder tracks at each end, with entrance and access to and from each end, thus precluding tying up the system if a single engine gets off track. The engine-house has smoke hood extending the entire length of building over each track, all being on concrete construction. There will be no turntables, all turning to be done on Y's in yards. Bids are being asked for this work, and contracts are to be let soon.

The Muskogee, Oklahoma & Gulf Railroad is manifestly the nucleus of an important future trunk line. Today it has a total of 256 miles in operation, under construction and under contract to be finished by October 1. The main line is operated between Muskogee and Wagoner, Okla., and between Muskogee and Denison

and Sherman, Tex., and there are 20 or 30 miles of branch industrial lines. An extension of 150 miles is being made from Wagoner to Joplin, Mo., via Baxter Springs and Galena, Kan. About 200 teams, one-half dozen steam shovels, bridge gangs and track-layers are on the job, track-laying is well under way, and two steel bridges are being built across Grand River. On the east side of Grand River the road runs through more than 40 miles of virgin hardwood timber.

Surveys have been completed for a line from Joplin to Pittsburgh, Kan., and also from Henrietta, on the present line, to Oklahoma City. Contracts have already been let for an extension of this line in Texas from Sherman into Dallas. John Hoffman is general manager of the Muskogee, Oklahoma & Gulf Railroad, and J. J. Harrison chief engineer, Muskogee, Okla.; Ian Perry, master mechanic.

ALBERT PHENIS.

EAST TENNESSEE ELECTRIC CO.

Boston Bankers Financing Hydro-Electric Plant—First Unit to Cost \$500,000.

The East Tennessee Electric Co. has been formed by Warren, Tucker & Co. and William C. Pearson of Boston, W. V. N. Powelson, J. W. Ross and E. H. Shudro of New York, and Amzi Smith of Johnson City, Tenn. Its plan is to construct a hydro-electric plant on Nolachucky River, with initial development of from 6000 to 7500 horse-power for transmitting electricity to Greeneville, Johnson City, Morristown, Jonesboro and Erwin. The initial installation is reported to cost \$500,000. The company has purchased the Greeneville Electric Co. of Greeneville, the Watauga Electric Co. and the Johnson City Electric Co. of Johnson City, Tenn., the price of the latter two properties being reported as \$325,000. It will apply for franchises at Jonesboro, Erwin and Morristown. It also plans to construct electric railways from Johnson City to Elizabethton, a distance of 10 miles, and to Jonesboro, a distance of 8 miles. Amzi Smith is general manager of the Watauga Electric Co., and will be general manager of the East Tennessee Electric Co. Mr. Powelson was formerly president and general manager of the Union Electric Light & Power Co. of St. Louis, and will furnish plans for the new development. Outlining its plans, the company was mentioned last week as having wired the MANUFACTURERS RECORD as follows:

"Propose plant on Nolachucky River nine miles from Greeneville; concrete powerhouse; gravity section dam; powerhouse designed for four units of 2500 kilowatts each; two units will be installed now; balance as market demands; president and chief engineer, W. V. N. Powelson, 60 Wall street, New York, and Greeneville, Tenn."

NEW COMMERCE RECORD.

Preliminary Figures of the Fiscal Year Just Closed.

The foreign commerce of the United States made a new and remarkable record in the fiscal year just ended. The total value of the merchandise entering and leaving the country in its trade with foreign lands and its own island possessions in the fiscal year 1912 was \$4,000,000,000; the value of manufactures exported was more than \$1,000,000,000, and the value of non-dutiable merchandise entering the country was \$1,000,000,000. Of this \$1,000,000,000 worth of non-dutiable merchandise entering the country during the year ending June 30, 1912, about \$900,-

000,000 worth was from foreign countries and \$100,000,000 worth from Hawaii and Porto Rico. Of the merchandise coming from foreign countries only (and not including that from Hawaii and Porto Rico) 53.5 per cent. entered free of duty, against 44.3 per cent. during the entire period of the Dingley law, 48.8 per cent. under the Wilson law and 53 per cent. under the McKinley law, when the admission of sugar free of duty made the percentage of duty-free imports unusually large, but not so high as that of the year just ended. In fact, the value of duty-free merchandise entering from foreign countries in 1912 not only exceeds by far that of any earlier year, but also forms a larger share of the total imports than in any previous years except 1892 and 1894, the opening and closing years of the operations of the McKinley law, when the imports of sugar free of duty were abnormally large. Imports of duty-free merchandise never reached as much as \$100,000,000 prior to 1873. They touched the \$200,000,000 line in 1880, the \$300,000,000 line in 1891, the \$400,000,000 line in 1892, the \$500,000,000 line in 1905, the \$600,000,000 line in 1907, the \$700,000,000 line in 1910, and in 1912 approximated \$900,000,000, and the addition of the merchandise coming from our own islands brings the grand total of non-dutiable merchandise in the fiscal year 1912 up to a round \$1,000,000,000.

The principal articles forming the \$1,000,000,000 worth of duty-free merchandise entering continental United States during the fiscal year 1912 are, according to the latest reports of the Bureau of Statistics of the Department of Commerce and Labor, foodstuffs and manufacturers' materials. The foodstuffs entering without payment of duty included about \$120,000,000 worth of coffee, approximately \$35,000,000 worth of tea and cacao, over \$20,000,000 worth of fruits and nuts, \$5,000,000 worth of spices and about \$90,000,000 worth of sugar from Porto Rico, Hawaii and the Philippines. The manufacturers' materials entering free of duty included approximately \$100,000,000 worth of hides and skins, over \$100,000,000 worth of India rubber and substitutes therefor, about \$65,000,000 worth of raw silk, \$50,000,000 worth of tin in bars, blocks and pigs; \$45,000,000 worth of copper in ore and pigs, \$30,000,000 worth of fibers, including hemp, jute and sisal, and about \$20,000,000 worth of raw cotton.

Of the more than \$1,000,000,000 worth of manufactures exported during the year, those of iron and steel aggregated about \$275,000,000 in value; copper and mineral oils, each more than \$100,000,000; lumber and other manufactures of wood, nearly \$100,000,000; leather and manufactures thereof, about \$60,000,000, and cotton manufactures, about \$50,000,000. Manufactures exported in the month of May amounted to \$108,000,000 for the single month, and formed 63 per cent. of the total domestic exports of that month. For the full fiscal year manufactures formed about 46 per cent. of the total domestic export. During the 34 months in which the present tariff law has been in operation, manufactures exported averaged \$75,000,000 per month, and formed 45 per cent. of the total exports. During the entire existence of the Dingley law they averaged \$46,000,000 per month, and formed 37 per cent. of the total exports; during the entire operation of the Wilson law exports of manufactures averaged \$22,000,000 per month, and formed 29 per cent. of the total exports, and during the existence of the McKinley law they averaged \$16,000,000 per month, and formed 21 per cent. of the total exports.

The Spirit in Dallas' Progress

[Special Correspondence Manufacturers Record.]

Dallas, Tex., June 20.

Has your city a civic soul, a moving, directing intelligence as well as a physical, corporeal existence? In watching the growth of an individual, the animating spirit, the unfolding mind, the forming character are of vastly greater moment and interest than the putting on of flesh and the lengthening of the stature. Is it always the case that great thought is given to the development of other than the material side of a municipality? The number of miles of paved streets, the sidewalks, the sewers, water-works, railroads and street cars—these are the things usually pushed to the fore when the growing town is given a description. The why

las, as it were, these were the points brought out.

Dallas in 1912 celebrated her sixtieth anniversary. Sixty years ago Dallas was nothing but a wide place in the prairie, not even a road—nothing but a crossing of the Trinity River, which designated the place where the city was to grow. Up to 35 years ago there was less than 1500 population. Today there are 111,760 people within an area of 18 square miles. A compact, progressive, typical city, with the spirit of the West and the spirit of the South intermingled to form that type of citizenship which is ready to take advantage of every opportunity for growth, development and progress.

there are now 26 wholesale agricultural implement houses in Dallas, selling between \$35,000,000 and \$37,000,000 worth of implements every year. Allied lines have come with it, such as harness and saddlery, until now Dallas manufactures and sells more harness and saddlery than any other city in the United States. With the growth of the country, the cultivation of additional lands and the production of more wealth in the territory, there has been added to the Dallas market practically every line that is handled by any large city in the country. Dallas now is the largest implement, saddlery and harness, gin machinery, automobile, electrical supplies and millinery distributing city west of the Mississippi and south of St. Louis.

Dallas has been fortunate in the citizenship which she has attracted to herself, in

carry through to completion great projects.

To show that the activity of the citizenship in the Chamber of Commerce is not confined to purely commercial affairs, it might be noted that two years ago the project of completing and rounding out the city's civic life by providing educational facilities was under consideration. Dallas was not satisfied with its 72 schools and colleges of medium grade; its citizenship wanted to give the very highest class of education to those people in Texas who might seek education in the city. Therefore, a gift of \$300,000 in cash and \$625,000 in land was offered to the Methodists of Texas if they would build at Dallas a great central educational institution for all Methodism in the Southwest. That offer was accepted, and this month ground was broken for the Dallas Hall, which is to be the most complete, the largest, best



ADOLPHUS HOTEL.



PRAETORIAN BUILDING.

of it all, its influence on the characters of the people who live there, the attractions that would draw the thoughtful and the desirable from elsewhere to continue and increase its expansion are not always dwelt upon, and may not robustly exist in favorable form.

It occurred to me, therefore, that in gathering material for a letter on Dallas, it might be worth while to depart somewhat from usual lines and treat the subject more from the standpoint of the spirit than of the matter. There is abundant literature extant which relates to the physical facts about Dallas, its network of railroads, its many interurban lines, its bank clearings, commerce, etc., all of which are important and necessary facts to lay before the public. But I wanted more about the spirit behind all this development than the figures revealed. I talked with Mr. J. R. Babcock, secretary of the Chamber of Commerce here, and in our discussion of the psychology of Dal-

The reason for the existence of Dallas is mainly its situation in the center of the black waxy land territory of Texas. This vast, fertile plain, which runs down from Illinois and through to the Gulf, has a constituent quality of soil which is most fertile and productive. Immediately surrounding the city there have grown up in the past few years 1257 cities, towns and villages, with a population of 1,641,000, that are now depending upon the city for a market, and to Dallas they look as headquarters for everything, not only in lines of merchandise, but in those other things which every well-formed and perfect city should give, viz., the best in education, culture, refinement and entertainment.

The first business to be conspicuously developed in Dallas was that of agricultural implements, on account of the fact that 85 per cent. of the activity of the whole State of Texas and the Southwest tributary to Dallas is agricultural. This business has grown and developed until

that there is no leisure class. Every man in Dallas is actively interested in business, and is, therefore, dependent upon the growth and development of the city for problematical profit in connection with his business. Further, the large manufacturers of the North and East have established at Dallas their distributing headquarters for the Southwest, and have placed in charge of those large distributing houses the best blood that there was in their different organizations. These young men have become identified with the growth and development of the city of Dallas and have taken an active part in pushing her forward in all lines. The "Dallas Spirit" is well known throughout the Southwest on account of the fact that, working in and through the Chamber of Commerce, it has always accomplished that which it has undertaken. Indomitable pluck, enthusiasm and energy have given its citizenship a confidence in itself which has enabled it to undertake and

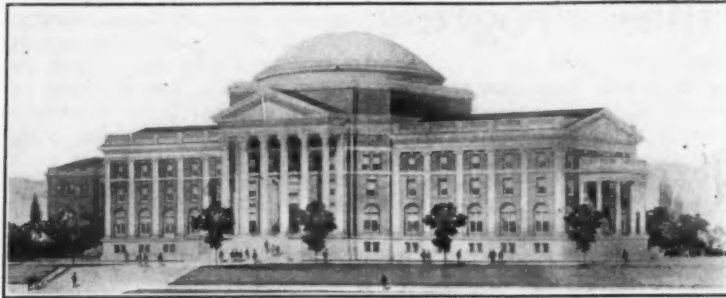
equipped single school building in the United States. This building alone is to cost \$300,000, and is the first of a series of five buildings to be immediately constructed. Shepley, Rotan & Coolidge of Chicago are the architects, and the designs for the building on the 133-acre campus of the Southern Methodist University will take advantage of all of the knowledge in planning college buildings and in laying out grounds which has come from accomplishment in the past.

This institution will have by July 1, 1913, an endowment fund of \$2,000,000. As there are 385,000 Methodists in Texas who are interested in this institution, and all subscribing to an endowment fund, the ultimate endowment of this institution will run up into many millions.

Illustrating also the wide range of activity of the citizenship of Dallas, there is just nearing completion and will be opened to the public on September 1, 1912, a 22-story hotel, which was pro-



DALLAS NEWS BUILDING.



ADMINISTRATION BUILDING, SOUTHERN METHODIST UNIVERSITY.



PARK HOTEL.

moted and carried through by the Chamber of Commerce. Realizing that Dallas needed not only additional hotel facilities, but those that would class with the finest in the land, a committee from the Chamber of Commerce went to St. Louis, interviewed Adolphus Busch, who already owned a third interest in a hotel here, and proposed that if he would build a new modern hotel in Dallas the citizens would show their interest in the proposition locally by subscribing stock, which was done in a small amount, \$150,000. Mr. Busch, with his usual method of doing things in a big way, closed with the committee for the purchase of the City Hall property, one of the highest-priced corners in the city of Dallas, at a price of \$250,000, and the new hotel is now nearing completion. It is a duplicate of the Blackstone in Chicago, but a much more artistic and complete building in every particular, 22 stories high, 320 rooms, the total cost of which will be \$1,600,000.

Further illustrating the fact that the spirit of Dallas is not inclined entirely to commercialism, it might be noted that the Chamber of Commerce undertook the formation of a symphony orchestra for Dallas. No city of 100,000 people has ever thought of being able to support a symphony orchestra, but one was started, a stock company of \$10,000 was formed in support of the orchestra, and the Dallas Symphony Orchestra of 50 pieces has just closed a most successful season, artistically as well as financially, and with its foundation, which is as yet intact, will continue through the years to come, growing in its effectiveness and value to the city.

Following this success the citizenship of Dallas made an offer to Andreas Dippel, the manager of the Metropolitan Grand Opera Company, for a four-night season of grand opera. The arbitrary figure of \$40,000 for four performances was placed by Mr. Dippel, but in 48 hours the contract was underwritten by Dallas citizens, and the engagement is now made for the last week in February, 1913. Atlanta, Ga., is the only other city in the South that has ever undertaken such a feat.

In a further altruistic way, Dallas has supported the Texas Industrial Congress. Col. Henry Exall two years ago was elected president of this institution, which was designed to have its effect upon political platforms and shape the policies of legislation to some extent. However, it

has entirely gotten out of the line for which it was primarily organized, Colonel Exall having undertaken to teach the farmers of Texas better agricultural methods in diversification and rotation of crops and intensive farming. The first year of its activity was closed in December last, and \$10,000 in gold was distributed in prizes, ranging from \$100 to \$2000 each, to those farmers getting the largest and best production of corn and cotton on certain specified acreage (from five to ten acres). There were last year some 1700 contestants; this year there is a greatly-increased number of contestants, to whom \$10,000 will be given in December next. There is no entrance fee, and

In the Chamber of Commerce there are now 1107 men, who give not only of their money, but of their time. The income of the Dallas Chamber of Commerce in proportion to the size of the city is the largest of that of any city in the South. It collects and spends annually \$60,000 in the regular course of its affairs. This is exclusive of bonuses, donations or subscriptions of any name or nature which are undertaken from time to time.

Dallas is a good convention city. It averages some 86 conventions per year, and the hospitality of its citizenship is well known in all lines. The notable convention of 1912 was that of the Associated Advertising Clubs of America.



COURTHOUSE.

no condition attached to the prize-winning in any way, shape or form. It is simply a gift on the part of the business men of Dallas interested in better agricultural methods. The big prizes act as signboards and words of warning to the farmer to show that he is depleting the intrinsic value of the soil, and that he should use the better and more scientific methods of cultivation. Colonel Exall is typical of the spirit of the new Southwest—a man who is devoting his whole life, his time, his energy and enthusiasm to the work of the Industrial Congress, absolutely without reward or hope of reward, except that which comes from having performed a service to his city and his State.

Dallas subscribed and spent some \$30,000 in the entertainment of the 2600 delegates who came from all parts of the United States. It not only entertained them; but undertook to educate them as to the possibilities of the fast-growing Southwest, and one feature of the entertainment was a 1000-mile trip through the heart of Texas on five special trains, which could not fail to have its effect upon these broad-minded molders of public opinion, who are not only producers of copy, but are heads of great institutions in magazine and periodical work.

Following this success the Imperial Shrine of North America decided to hold its annual meeting in Dallas in 1913, and

with its 70,000 visitors Dallas will again reach up to its high mark of efficiency and hospitality in entertaining the Shriners next year.

In a material way Dallas is progressing. This year marks the dedication of the great viaduct, 5842 feet long, the longest concrete reinforced viaduct in the world, connecting two parts of the city, going across the Trinity River bottom—a monument to the spirit of the Southwest and indicative of the desire which all of the citizenship of Dallas county has in providing the most modern public utilities and conveniences of every type.

In a public way the other things to be undertaken are a city hall, to be built during 1912 and 1913, costing \$425,000, and a new city hospital, costing \$150,000; three new fire stations; a branch public library, and in the fair grounds a new restaurant building which will be 700 feet long by 52 feet wide, of reinforced concrete, for which the contract has been let and the work begun in June.

The State Fair, held at Dallas annually for two weeks in October, is perhaps the greatest force in developing and advertising the city. It has centered the eyes of all Texas upon Dallas, and is perhaps more responsible for the growth of the city than any one of its public institutions. The fair is unique, in that it has grounds of 127 acres, equipped with \$462,000 worth of permanent buildings, which are owned entirely by the citizenship and is managed by a board of directors and a president who give their time to the control and management of this institution without charge. During 1911 there were 800,000 paid admissions. As high as 100,000 people per day have attended the State Fair at Dallas. Manufacturers from all over the world come to exhibit at the Dallas Fair, knowing that there they can get before the very best class of Texas citizenship, and the conveniences offered, the prices for space and the attractiveness of the fair itself are not equaled by any similar institution in the world. This year there is being undertaken a revival of harness racing, and \$35,000 in purses is offered for harness races alone. This amount of money indicates that Dallas never does things by halves. Up to date it is the largest total amount of cash stakes to be offered by any fair or racing institution in the United States for this season.

As indicative of the material progress of Dallas, there are a number of notable



BUTLER BROS.' PLANT.



A \$70,000 RESIDENCE.



PUBLIC LIBRARY.



MODERN CHURCH ARCHITECTURE.

buildings under construction here today. The Missouri, Kansas & Texas Railway Co. general office building, eight stories, reinforced concrete, 75x100, is just enclosed, and will be finished inside of the next 60 days; the Commonwealth Bank building, 12 stories, 53x100, is a most beautiful steel fireproof structure, which, together with the eight-story annex, 53x100, will make a most substantial addition to the office and high-class bank buildings in the city. The Sumter building, eight stories, of steel and reinforced concrete, is now up to the third floor. The Southwestern Life building, 100x90 feet, 16 stories high, is just being opened for tenancy, and within the last 10 days the Busch estate announced their intention of erecting a 16-story building, 125x100 feet, on the busiest corner in the city of Dallas, namely, the corner of Main and Akard. This, together with the Cotton Exchange, seven stories, 75x100, opened during May, shows something of the substantial building development that has been going on. The many encouraging prospective buildings for the balance of 1912 and 1913 show that Dallas is still going to keep up its building pace, in which it now leads all but two cities of the United States.

The Chamber of Commerce, the powerhouse of the city and the dynamo of energy behind the citizenship has just closed a unique campaign for a new building for itself. Contrary to the usual custom, where money has to be subscribed in the nature of gifts for commercial organizations, the Dallas organization simply announced itself as wanting new quarters. Immediately the citizens in both the East and West ends of the business section of the town bestirred themselves and inside of two weeks both sets of citizens has offered sites with substantial bonuses for building. After some negotiation a public meeting of the membership was called, and at the meeting it became a question simply of which site the membership of the Chamber of Commerce would choose, as both buildings were completely financed, all of the first and second mortgage bonds subscribed in the amount of \$425,000 for each building. The corner of Commerce and Poydras was chosen, and on this site on July 1 a 10-story reinforced building, 75x100, in connection with an auditorium, 75x100, three stories high, will be commenced. This property, 75x200, runs through and between two of the main streets of Dallas. It will furnish an auditorium seating 2200 people and a most modern office building of 10 stories.

Dallas long ago realized that to attract the best type of citizenship and those industries that were logical and desirable it must first provide conveniences for health, happiness and the satisfactory conduct of a business from an industrial standpoint. It therefore undertook several years ago the idea of city planning, and in connection with this work it is paying particular attention to providing parks, boulevards, recreation centers for laboring people, cutting through arterial highways, making adequate its water supply, which now, with the completion of the White Rock reservoir, which was built during 1910 and 1911 at a cost of \$700,000, has given Dallas a most satisfactory water supply for years to come. James H. Fuertes, of the municipal sewerage commission of New York city, is the consulting engineer of the city of Dallas, and he is now working on the plan for a new filtration plant and a sewage-disposal plant for the city.

Geo. E. Kessler, the noted landscape architect of Kansas City, has for two years been in the employ of the city of Dallas as an expert, laying out the plan for the future growth and development of

the city. This touches all phases of the activity of the city, and is a most comprehensive and workable plan. While it will cost probably \$25,000,000, and it will take 30 years of time to complete this plan in all of its details, nevertheless the courage of the citizenship of the city of Dallas does not let them stop, and every week the city plan committee of the Chamber of Commerce meets and undertakes some work which has been laid out by Mr. Kessler. Great success has already been attained along this line in the open-

ing up of dead streets, in getting donations of land for parkways and boulevards, in getting additional playgrounds and park facilities and in general beautifying and making more habitable the whole city.

The city plan as prepared by Mr. Kessler has been accepted as the Bible of city development on the part of the citizenship, and it is the ideal to which not only the citizens, but the city government itself, is committed and will earnestly strive to realize.

ALBERT PHENIS.

The Tampa and Manatee Sections of Florida.

INCREASING RAILROAD TRAFFIC DEMANDS EXPANSION.

[Editorial Correspondence Manufacturers Record.]

Bradentown, Fla., May 25.

In Manatee county there are approximately 12,000 acres of land under cultivation, mainly in fruits and vegetables, yielding annually, according to the estimates of local authorities, from 1,200,000 to 1,500,000 boxes, or about 3000 carloads of fruits and vegetables. That is a marvelous showing of freight creation, where for every four acres under cultivation there is furnished to the railroads a full carload of freight, yielding in some cases for freight alone from \$750 to \$1000 per acre.

In this county is the largest bearing grapefruit grove in the world, which has yielded as high as 78,000 boxes in one year. This, the celebrated Atwood Grove, has about 24,000 trees. It covers 250 acres of ground, and produces 200 or 300 carloads of grapefruit per year. Close by it is the grove of the Manatee Fruit Co., which has 36,000 grapefruit trees. A large proportion of these will not, however, come into full bearing for one or two years. Last year this grove produced 35,000 boxes of fruit. Its expected yield this year is about 70,000 boxes, and this amount will probably annually increase for some years until all of the trees are in full bearing.

With only 12,000 acres of land as yet under cultivation, there is produced the astonishing total of about 3000 carloads of freight, but accessible to existing railroad lines there are about 100,000 acres of undeveloped land that can be made to produce as prolifically as these 12,000 acres, and it is estimated that there are 500,000 acres in what is known as the Manatee country that can eventually, by the extension of railroad facilities, be made available for intensive farming of this kind.

Last year the total production of citrus fruit in Florida was estimated at about 4,000,000 to 4,500,000 boxes. It is yet too early to make a final estimate as to this year's crop, but the best-posted men in the State are figuring on an aggregate yield of between 8,000,000 and 9,000,000 boxes of grapefruit and oranges. This would mean an aggregate of 20,000 to 25,000 carloads, the handling of which will tax the railroads of Florida. The very prospect of such an enormous volume of freight business should stimulate every railroad in the State to prepare for this traffic and for the still heavier traffic which Florida will every year provide. It is estimated that in the Manatee section the citrus crop of last year was about 150,000 boxes, or 500 carloads. Estimates vary as to what will be the crop in this section this fall and winter, but the lowest calculation which the writer has received is for a crop of 300,000 boxes, or 1000 carloads, 300 boxes being the minimum carload, while a well-posted broker handling fruits and early vegetables estimates the yield at 700,000 boxes, or 2300 car-

loads. As year by year the new groves in the Manatee section come into bearing there will be a great increase in the yield, exceeding even the highest figures estimated for this year.

While this section has the two largest grapefruit groves in the world, and many smaller ones, it is probably more widely known for its trucking business even than for its orange and grapefruit groves. The acreage devoted to vegetables in the immediate vicinity of the Bradentown region for last year is estimated as follows:

	Acreage, 1911-12.	Output, Cars.
Celery.....	450	500
Lettuce.....	1000	362
Tomatoes.....	2200	500
Other vegetables.....	200	82
Citrus fruits.....	...	500
Total.....	...	1944

This gives a total of nearly 2000 carloads of perishable freight that left the Bradentown section during the fruit and crop season of 1911-12, and, as stated, several estimates put the aggregate for the coming season of 1912-13 at 3000 to 4000 carloads, the lowest estimate made showing 1000 carloads of citrus fruits, as against 500 last year.

The yield per acre of these early vegetables averages in this district, according to the statements of railroad officials and others, for celery from 500 to 900 crates, with 350 crates to the car, which gives a total of about two to three carloads of freight per acre for celery.

Lettuce often yields from 400 to 1000 crates per acre, with 400 crates to the car, while the yield of cabbage is about 200 crates per acre, which is the average amount per car of cabbages. Cauliflower yields 200 to 450 crates per acre, or about one carload, the difference in the number of crates to the carload being according to the size of the crates.

It is possible to raise two crops of celery per season by replanting as soon as the first crop is gathered, but usually tomatoes follow the celery and lettuce on the same ground, two crops of some kind being always produced on the same ground, and sometimes three, thus affording to the producer unusual money-making opportunities, doubling the possibilities of money-making as compared with a one-crop country, and at the same time providing a volume of freight which is making the railroad people of the South as eager to get their lines into trucking sections as they have been to build into great coal and iron-ore fields.

In the Manatee country the Seaboard Air Line is the only railroad, and while it is doing much to advance the prosperity of the country, it is to the benefit of the railroad and of the country itself that no railroad can ever have a monopoly of transportation in this region, because abundant water transportation facilities by the Manatee River and the bays which

stretch from Tampa far down the coast make possible the profitable operation of a number of steamship lines which can be made freight regulators, thus avoiding the difficulties when a monopoly of the transportation facilities by one railroad often produces friction to the injury of the road and the country alike. The Manatee country region, with its wide and beautiful rivers, its great bays sweeping along its coast for many miles, furnishing inland water transportation direct to Tampa, is peculiarly favored by nature. That the two largest grapefruit groves in the world are within its limits, that the 12,000 acres under cultivation yield so prolifically, are but indications of the almost limitless potentialities of this region. Ten years ago Bradentown, the largest population center in the section, was a straggling village of 300 people. Today it is one of the most charming towns that can be found in this country, with well-paved streets, splendid roads running far out into the country, and the leading ones even oiled, with all modern municipal improvements, with many attractive homes, schools and churches and a population of about 2500. Its growth in 10 years, based on the fruit and trucking industry, is typical of what is seen throughout the whole settled region of this county. Since last November about 200 dwelling-houses have been constructed in the town, and it is said that 90 per cent. of them were built by the owners for their homes. The city is spending \$100,000 in the extension of streets, water and sewerage, and the county is spending a bond issue of \$250,000 on roads to give it about 60 miles of macadamized roads in addition to the hard roads built prior to this bond issue.

One of the interesting features of the town and farm development which is taking place in and around the Bradentown section is that the owners of these lands live in town in order to give their families the benefits of the community life, and the advantages of schools and churches, the men going out to business—truck growing or fruit raising—in the morning, as the city man goes to his business. In this way every advantage of city life is provided for the truckers and fruit growers. Some prefer to live on their farms or groves, but a very large proportion of the people in Bradentown are interested in the operation of trucking farms or fruit groves throughout that territory. This makes a combination of city and farm life which adds very greatly to the comfort and convenience of the family.

During the last few years there has been a large movement of population into the whole Manatee section from other parts of the South, as well as from the North and West. Among the people who have sought this region for its climatic advantages, as well as for the possibilities of fruit growing, are the Potter-Palmer interests of Chicago, whose proposed development of 100,000 acres was recently detailed in the MANUFACTURERS RECORD. The Ringling Brothers, the well-known circus men, are spending a fortune in the establishment of beautiful homes on Sarasota Bay. R. C. Caples, general superintendent of the New York Central Lines; W. A. Beckler, general passenger agent of the Queen & Crescent Route; J. W. Ponder of Wilmington, Del., and many others are among large property-owners in that section who are building or have recently completed attractive homes.

The movement of people of wealth such as these to any section is in itself the strongest proof that could be given of its attractions from the health and home-making point of view. With the entire country from which to select, the fact that they have settled in the Manatee region

is their testimony to the world as to its advantages from their point of view.

When 10 or 12 years ago John Skelton Williams, then president of the Seaboard Air Line, secured for that road the Florida Central & Peninsular Railroad, there were many people who thought he had made a mistake. Some of the conservative financial writers of the country criticised the Seaboard's operations at that time as an attempt to put together disjointed roads which they said offered but little prospect for the building up of a strong system. Williams, however, had a clearer vision of the future of Florida than had others, who had judged Florida only by the conditions then existing. He saw in that State the possibilities that all are today seeing. It was but a few weeks ago when a leading official of one of the great railway systems of the South said to me that not until five or six years ago had his people taken Florida seriously. They had thought, he said, that Florida was a temporary proposition and dependent mainly for its future upon an uncertain tourist business. They have since come to realize that Florida is one of the greatest assets of the South; indeed, one of the nation's great assets. One may find all over Florida men who have come from every part of the Union, and whose enthusiasm about the State is boundless; especially is this true of men who have settled in Florida after trying out the best of California. These men all tell you that California has no such climatic advantages as Florida; that it does not begin to equal Florida in natural advantages and resources for material upbuilding and the creation of wealth. They will point to the rapidly-increasing demand throughout this country for grapefruit and the fact that Florida practically has a monopoly of grapefruit culture; they will tell you that Florida has only begun to develop its citrus-fruit industry; that only within the last year or two has it handled its oranges and grapefruit with any wise system in order to prevent the glutting of some markets and the starving of others; they will also tell you that the time will come, and that in the near future, when refrigerator ships will provide means for shipment of many of Florida's products direct from Tampa, Jacksonville and other ports to all leading Eastern markets and deliver them in better condition and at a lower cost than is now done by the railroads. Nevertheless, even if this be carried out and Florida begin the shipment of fruit in refrigerator ships, there will still be an increasing traffic for the railroads which will more than tax the facilities of every line in the State.

Throughout Florida, as well as on the West Coast section, traffic is growing faster than railroad facilities, and there is not in sight today a railroad expansion campaign quite equal to what the future will require. When John Skelton Williams made the deal for the purchase of the Florida Central & Peninsular and coupled it up with the Seaboard, instead of making an unwise move, as some at that time imagined, he made one of the most far-seeing plans which it was possible for the Seaboard or any other line to work out. Tampa at that time had about 15,000 inhabitants. Today Tampa and its immediate suburbs, in which most of its manufacturing is done, has a population of about 50,000 or 60,000. In 1900 Tampa's total foreign trade amounted to \$2,600,000. Last year its foreign trade aggregated \$9,600,000, and the growth of the future promises to very far exceed that of the past.

The Seaboard Air Line has been exceptionally fortunate in securing immediately in Tampa's harbor an island for its ter-



MELONS AT TARPON SPRINGS, FLA.

Last November the 10 acres of land at Tarpon Springs, Fla., on which the melons, pictured in the accompanying illustration, were raised was uncleared, raw land. On May 29 the owner shipped the fourth carload, containing between 900 and 1100 melons, with another picking, probably amounting to another carload, still on the ground. The melons sold at contract price of 30 cents each, regardless of size. Some of the smallest ones weighed in excess of 20 pounds. The owner of the property not only raised these melons, but he has set the entire 10 acres in grapefruit, all of which are doing fine, and the melons were raised as a side crop. He has built a house on the property, a very unpretentious but comfortable little affair, in which he and his family have lived since their arrival here. His entire investment is less than \$950. He will get in excess of \$1300 for watermelons before he has been six months on the property, thus having gotten his money back and a profit of almost \$400 on his investment. He was formerly a shoe drummer from Boston. This is understood to be his first melon crop or farming experience. Adjoining his property is an eight-acre tract, the property of an engineer from Chicago. He knew nothing except about engines and mechanics, came to Tarpon Springs about the same time, has worked the same way on similar land and produced the same results proportionately. The two are very happy and pleased over their success. This is a good illustration of what can be done by a newcomer, though inexperienced, if he is energetic and willing to work.

minal facilities. Its docks and phosphate rock elevator are located on a part of this property. The deepening of the water around this island, which is an entirely feasible project, will make it possible for the Seaboard to secure some seven or eight miles or more of deep water front. The value of such a water front in a growing port with the future of Tampa it is difficult to estimate. In Tampa, as in the whole Sarasota Bay section, the Seaboard holds a strategic position giving it exceptional advantages. So great is to be the development of this whole West Coast, as well as of the interior through which the Seaboard passes to get to the West Coast, that the owners of the Seaboard line will miss a great opportunity if they do not utilize the situation by increasing the strategic hold which they have on the West Coast by extending their line northward from Tampa up through Northern Florida and to some outlet to the west through Atlanta or Augusta.

The growth of passenger traffic as well as freight business will justify very large expenditures in putting the roadbed into better shape and building a solid road, regardless of the fact that in this State rock ballast is not easily available for roadbed work. So heavy is the tourist business in Florida during the whole winter, and so heavy is the movement of freight in and out, that Florida railroad managers must come to a full recognition of the absolute necessity of providing roadbed and equipment in keeping with the traffic. Florida is no longer an experiment, no longer an uncertain problem as it was by so many regarded 10 years ago. It has demonstrated that it is to be the great winter resort of America; that very much of its land is to be made a market garden for the whole country, and that its citrus-fruit industry is in itself to be a source of enormous railroad traffic. All of the traf-

fic, including tourist business, oranges, grapefruit and early vegetables, pay the highest rate of transportation, and therefore have a right to the best facilities. Any land which can produce such crops of fruits and vegetables as to yield the enormous freight rates paid, and any land which can draw to itself for the winter months so many thousands of people as are now annually flocking to Florida has a right from every point of view to have the very best railroad facilities that can be provided. Any other treatment of Florida by the railroads will be short-sighted in the extreme.

The amazing progress of this State since the time when the Seaboard Air Line, through the leadership of Skelton Williams, became one of the dominant factors in the transportation interests of Florida may be indicated in a few facts which illustrate what the future has in store.

In 1900 the value of farm lands and improvements in Florida was \$40,799,000. In 1910 the value was \$117,600,000.

In 1900 the total bank deposits of the State were \$3,700,000; by 1911 they had increased to \$24,180,000.

The wealth of Florida, which in 1900 was about \$355,000,000, is now \$600,000,000, and there is every assurance that in the next 10 years this will be doubled and go to \$1,200,000,000.

The far-seeing judgment which led the Seaboard into Florida has been more than justified. It made possible conditions which, wisely utilized, will make it one of the great and most prosperous railroad systems of the country. In very much of the Manatee country there are potentialities which have yet scarcely been touched. The 12,000 acres of land now under cultivation, yielding such magnificent returns to the growers and to the railroads, are only a fraction of the land available for similar agricultural purposes. There are

hundreds of thousands of acres in all this region available for cultivation, and a very large proportion of this land, when properly handled, will easily yield as abundantly as that which now produces such remarkable crops of early vegetables and fruits.

R. H. E.

West Virginia at Chicago.

[Special Cor. Manufacturers Record.]

Morgantown, W. Va., June 26.

At the annual meeting of the executive council of the West Virginia State Board of Trade, held at Grafton, it was decided to make an agricultural exhibit at the United States Land Show at Chicago Coliseum Building, November 21 to 28, 1912. A special committee with full power to act in carrying out this enterprise was appointed. Dr. I. C. White, president of the State Board of Trade, is chairman of the committee, and J. H. Stewart, agricultural agent of the Baltimore & Ohio Railroad Co., and five others are members. A contract has been made for space 22x35 feet, and an extensive and admirable exhibit is planned and the materials are now being collected. A similar exhibit to that put on at the Pittsburgh Land Show is contemplated.

This step shows enterprise and confidence in the future development of the agricultural industries of West Virginia among her own people. The Board of Trade will have the active support of its own membership, also of a number of strong, energetic local boards of trade and many of the best citizens of the State in this undertaking. The rapid development of the other industries and resources of the State have created a great home market, and there is now room in the State for many thousands of farmers who can find a ready market at high prices for all their products within the State and at convenient nearby markets. No region of the United States offers greater net returns for well-applied capital and labor than that of West Virginia.

FARMING BY IRRIGATION.

The Opportunities in the Texas Plains Country.

Chamber of Commerce,

Plainview, Tex., June 26.

Editor Manufacturers Record:

I read with great interest an article in your issue of June 20, entitled "The San Antonio Section." Irrigation has certainly done wonders for that portion of the State, and by their example we are encouraged in our efforts to develop irrigation by pumping from shallow wells in the Great Plains country.

There are over 500,000 acres in Hale county alone that can be subjected to irrigation, the lift for the centrifugal pump in no place being over 60 feet, and ranging down to 25 here at Plainview. The same conditions exist in many neighboring counties, and there is no doubt that an area larger than many States can be developed in this manner out here on the plains.

Many counties to the west of us—some with shallow water—will see a railroad for the first time when the Santa Fe cut-off is completed. There will be a mighty development of irrigation throughout this country by local capital, and some foreign money has already been interested. We naturally want to interest more. We have 20 wells already down since the discovery of irrigation a year ago, and contracts have been let for a legion of others.

Z. E. BLACK, Secretary.

It is estimated that more than half a million dollars will be spent this summer in and around Sanford, Fla., upon public improvements.

Salt Works on the Ohio.

By L. C. ALLEN.

Passengers on the train of the Ohio River division of the Baltimore & Ohio Railroad are always interested in the towns of Hartford, New Haven and Mason City, on the West Virginia side, and Syracuse and Pomeroy on the Ohio side of the river, because of the unusual industry that is carried on.

A strange odor comes through the open

numerous queer-looking buildings surmounted with what looks like a huge wooden chimney. At the bottom of each chimney or tower is a salt well. The wells in a number of instances are pumped with gas engines, and gas engines are also used in some cases to pump water out of the mines.

The several salt works are near the

The tall piles of fagots or hoop poles used in making hoops for barrels are everywhere in evidence, and one wonders why they do not use iron hoops on the barrels until you notice the havoc the salt water plays with metal of any kind. The pipes used to convey the liquid are in some cases made of hollow logs of poplar and other woods.

The art of barrel-making, or coopering, as it is called, is practiced here in all the old-time splendor, and if the scene were transplanted to any European country and located along some of the tourist lanes of travel it would be a Mecca for the sightseers. The queer old processes, the old-fashioned tools and methods, the smoke rising from the smudge fire in the barrels

wide and 10 feet long. These pans rest on a stone wall over a fire pit, and are covered over with a wooden box chamber about 120 feet long and 3½ feet high. This covering is called a steam chest, and, like the lid on a kettle, helps raise the temperature of a solution to a higher point than could be obtained in an open vessel.

After the proper boiling has been given to a quantity of the salt solution it is drawn off into a wood vat called a mud settler, and although the solution seemed perfectly clear while entering the heating pans over the furnace, a considerable residue is found at the bottom of the mud settler. This residue contains a large per cent. of oxide of iron.

From the mud settler the hot solution

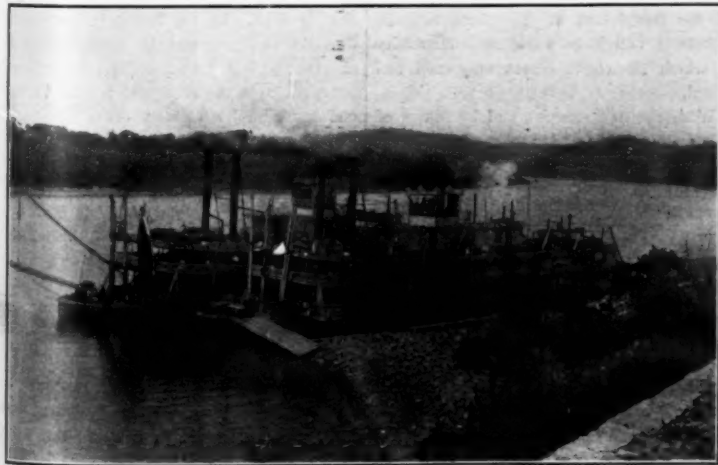


SALT WELL, HARTFORD, W. VA.

windows of the coach during the warm summer days as the train passes along through the yards on the outskirts of the town.

"The smell of salt," someone remarks. "The Great Salt Bend." For over 150

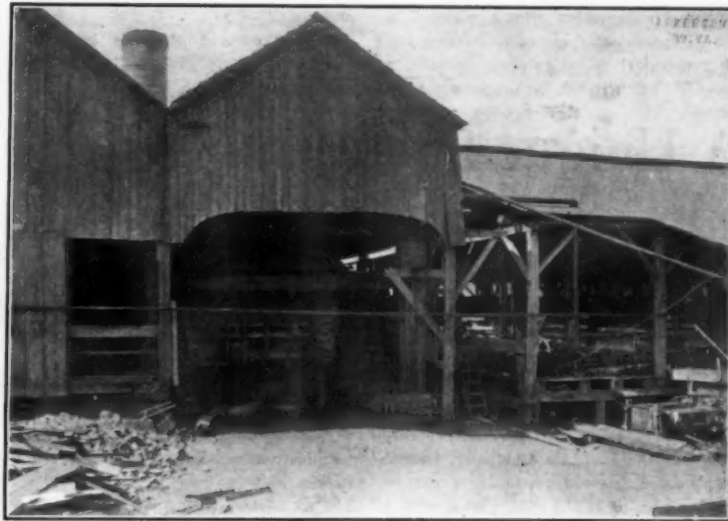
years and generally at the mouth of a coal mine which runs into the hills just back of the towns on both sides of the river. The ability to secure cheap fuel from coal mines so near has preserved the industry against foreign and domestic competition.



STEAMBOATS LOADING WITH SALT, POMEROY, OHIO.

years this bend on the Ohio River, known to steamboat men as "Salt Bend," or "Great Salt Bend," has been the center of a large salt industry, and the river bend, or highland along the river, is dotted with

With a few exceptions the industry is carried on today in most respects just as it was over 100 years ago, and the scene around a salt works is one of more than usual interest.

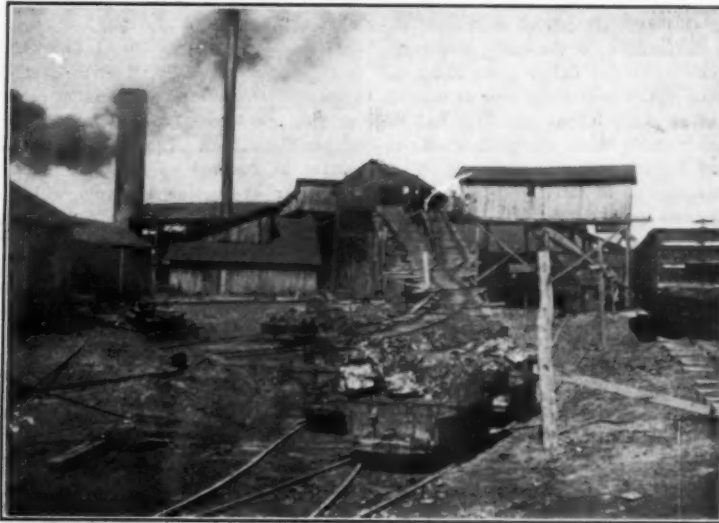


SALT FURNACE AT HARTFORD, W. VA.

would attract scores of travelers to the scene in the Old World.

The strata containing the salt solution lies about 1200 feet under the surface, and the water rises to within 600 feet of the surface after the well is drilled in. The well as generally drilled is termed a six-inch well, and is cased with iron casing to about 800 feet below the surface, where the surface water is packed off with a packer such as is used in oil wells. The salt water is pumped from the well into a

passes to two vats called drawn settlers, where the solution is still further clarified and treated. The solution then passes to the first graining vat, which is a long wooden box lined with tile, where the salt begins to form in flakes on the surface and falls to the bottom of the vat, where it is picked up by power scrapers or shoveled up on a draining platform by hands. The gravity of the salt water as it comes from the well is approximately 9 degrees Baume. When heated it falls to 6 degrees



SALT WORKS AT HARTFORD, W. VA.

cistern, which is generally elevated on the side of a hill near the plant, and is carried in copper or wooden pipes by gravity to the salt furnace. Where wood log pipes are used the sight is a very unusual one, as they are laid on top of ground and run in every direction from plant to wells.

The salt furnace is one of the most interesting sights around the works, and consists of a series of iron pans, about 40 in number, each pan being about 3 feet

Baume and is liberated from the pans over the salt furnace, when it reaches 15 degrees Baume. The graining process starts when the solution in the first grainer reaches 22 degrees Baume.

The best salt is formed in this first grainer, although different grades of salt are extracted from the solution in five other grainers and they are used for the feeding of cattle and the making of brine solutions, etc. As the solution passes

from one graining vat to another it becomes more and more bitter, and on being released from the last of the six large graining vats into a small graining vat, called the "shoo fly," it is called bittren, or bitter water, and is turned into a storage vat to undergo still further treatment for the reclaiming of bromine. The bromine still is a wonderful apparatus, consisting of a large stone retort in which the solution is heated by live steam, and the bromine vapor condenses in boxes filled with coils of pipe; the bromine, a blackish-looking fluid, collects in a series of large bottles at the ends of the long lead pipes.

After the solution goes through this complicated chemical process for the purpose of reclaiming the bromine it is led away to another storage tank, where it is treated for the purpose of reclaiming another chemical called calcium chloride, a chemical much used in preparing anti-

freezing solutions for cooling internal-combustion engines in winter.

A solution of 90 pounds of calcium chloride to 30 gallons of rainwater is the formula most used for the purpose. Calcium chloride comes put up in steel drums to keep it from gathering moisture. It is a white substance. In fact, its affinity for moisture is made use of in various ways around the laboratory and in the arts; it is also used largely for refrigerating purposes, as it does not affect iron like common salt.

When the calcium chloride is extracted the solution is all evaporated. The solution in its progress has given off several by-products that contain other chemicals which could be extracted if the known processes of extracting were not so expensive.

The Government chemists have been investigating lately with the idea of using these by-products as a base for fertilizers.

A Unique Suburban Development.

[Special Correspondence Manufacturers Record.]

Charlotte, N. C., June 29.

The more completely a suburban development fulfills its practical ends, the better does it serve and meet those requirements for the health and happiness of its residents, and so in the plan of development of Myers Park, a suburban property owned by the Stephens Company, George Stephens of this city president, a comprehensive plan of boulevards, parks, streets and landscape developments were outlined by John Nolen, landscape architect and city planner of Cambridge, Mass., the engineering being in charge of Holmes Blair and Brent S. Drane of Charlotte, N. C.

The property of the company embraced in the plans consists of 1220 acres, beginning at a point adjacent to Elizabeth College and about a mile from the city's center, extending southward for about 2 3/4 miles, having at the lower end a width of a little over a mile, embracing the full width of a ridge between Sugaw and Briar creeks, the principal streams in the vicinity of Charlotte. This area is gently rolling, with perfectly natural drainage, forming the backbone of the entire property.

The lower and flatter areas along the streams have been given over to development as a continuous parkway, and the ridge running from the main divide toward the streams on either side offer a great variety of interesting scenery up, down and across the valley, with one point in common, that each ridge seems to overlook all of the others. A large portion of the property is in original forest.

In all, the natural features of the property lend themselves to the highest type of residential property development, and the plan is everywhere made to develop the very best of the topography of the country. Every building site over the great area has had thought given to bringing out its utmost possibilities.

The boulevards and residential roads follow graceful curves as determined by the contour of the country and in accord with the requirements of the building sites.

To the plans thus carefully made construction details have been made to accord and the community interests carefully protected for all time by well-considered restrictions under which the property is sold.

The route of the electric car line was thoughtfully worked out, and less than 2 per cent. of the residential property will be more than two blocks distant at any

point. All residential property will have city water, sewer, electric light and gas connections.

No residential lot will be farther than two blocks distant from a playground or park area, this detail having been carefully considered and worked out. The community restrictions above referred to provide that no residential subdivision shall be of less area than one-half acre, nor have less road frontage than 100 feet; that no building shall be nearer than 40 feet to the road or within 20 feet of the party lines, and the class of building, depending in part on the location, is provided for, that it shall not fall below a fixed standard.

A few facts regarding construction details may be of special interest. The electric car line service will be an extension of the city system over the Stephens Company's tracks, the company introducing a type of construction in advance of the local company. The car line is a double-track loop four miles in total length, occupying the middle 20 feet of a 40-foot parkway in the center of the 110-foot boulevard, which, as already stated, is within two blocks of practically all the residential property. Ornamental iron trolley poles, carrying the street-lighting system, are for use throughout. This same boulevard carries the gas and water mains. Along the latter at regular intervals will be placed fire pressure hydrants. A driveway 16 feet in width follows either side of the central parkway, on either side of which, in turn, is a 14-foot parkway, between which and the property line is a five-foot concrete sidewalk.

Residential roads, according to their importance as traffic carriers, are 80, 70 and 60 feet in width, the central driveway varying from 40 to 24 feet, and the remaining width being in parking and concrete sidewalks.

All driveways are to be surfaced with asphaltic macadam, and all principal roads have the drives edged with concrete curb.

The streets will be kept free from telephone and electric-light pole lines, these following the rear lot lines for house service.

To give this development a distinctive gateway is provided at the main or Elizabeth College entrance. This gateway is very simple, yet presents a certain beauty of design and consists of a covered portal over each sidewalk, flanked by stone and iron fencing, curving forward to the sidewalk, with a central lodge over the car

track serving as a car station, under which the cars stop. Other similar architectural effects are designed for construction at the entrances at the boulevard to the important connected developments of Colonial Heights and Hermitage Court, both under the same engineering supervision as that of Myers Park.

Especial architectural and landscape treatment has been applied to the location of the stores planned to serve the community, together with garages and other buildings of similar public utility. In their location exceptional care and thoughtfulness was given, so as to place them within a reasonably short distance and of equal convenience to all of the residential property without making it necessary for the heavy wagon and farm traffic to pass over and into the heart of the residential section or district.

The heart of the whole development lies, however, in its individuality as a college center, for it is here, in the most picturesque position of the original forest land, and extending westward out of the woodland, to include one of the highest knolls on the estate, a domain of 50 acres, extending through the loop from car line to car line, has been acquired by the Presbyterian College for Women, an institution of broadening influence, which under the present administration is accomplishing splendid increase of support and endowment. Having outgrown its building equipment in the heart of Charlotte, it was clear to the administration that in seeking a new location the college should be given physical advantages sufficient for all time to come, so far as present foresight could provide. Approval of their wise choice has been unanimous. With the car line at the college gate, and all of the other conveniences of modern community life provided, the spaciousness and natural beauty of the college campus make the site ideal.

Mr. Nolen, the landscape architect, has been most fortunate in his treatment of the situation, and the architectural and landscape plans for the new college setting give assurance that this will be notable among the most beautiful and perfectly adapted to its purposes of the colleges of the country.

The buildings are grouped in the original forest, which practically covers half of the property acquired by the college, and are wonderfully well adapted to the site. New plantation work to screen off the outlying parts of the plan, such as the recreation field, gymnasium, tennis courts and outdoor theater, will need to be very limited, so well has nature provided. In the completion of the plans adopted Charlotte will have a college community in which the entire South may well feel proud.

With the fine campus and buildings of Elizabeth College at its entrance gateway, and the Presbyterian College as its center, Myers Park would appear to have every attraction as a community of homes.

Wrought out on a community plan in no respect inferior to beautiful Roland Park of Baltimore, Md., which may for comparison be regarded as typical of the ideal of the builders, and administered by a syndicate composed of men whose names stand for successful accomplishment of large undertakings, and built throughout without regard to expenditure, making for a permanency of construction, Myers Park will undoubtedly be known within the next few years as one of the show places of the South.

To give another idea of the extent and scope of the plan of development, the following facts may be of interest: The total length of residential streets is 21 1/2 miles, with a car line of 4 miles and 21

miles each of sewer, water and gas mains, with a total of about 150 acres given over to park areas. The development included in present construction is about 200 acres in extent, and the contract guaranties are as follows: Electric car line 1 1/2 miles and 3 3/4 miles of streets, involving the following construction: 45,000 cubic yards grading, 35,800 linear feet concrete curbing, 19,900 square yards concrete sidewalk, 51,500 square yards street paving, sewers 57,717 linear feet, water mains 17,800 linear feet, gas mains 17,800 linear feet, telephone and electric wires to correspond.

The grading, tree planting, finishing and sodding is being done by the company's forces, a 24-team outfit and about 50 laborers, and by the contract forces of Johnston, Porter & Peck of Charlotte, N. C., and J. A. Wallace, Charlotte, N. C. The water mains are also being laid under contract by Johnston, Porter & Peck, while the Charlotte Gas & Electric Co. is putting in the gas. Sewers are being laid under contract by W. C. Standell, Charlotte, N. C., and the electric railway by the Charlotte Electric Railway Co., Charlotte, N. C., under the Stephens Company's engineers. Present construction calls for the use of 11,500 barrels of cement and 8500 cubic yards of rock.

J. LOUIS SPENCER.

To Irrigate 275,000 Acres.

The Cotulla (Tex.) Reservoir & Irrigation Co.'s engineer, W. H. Sylvester, has completed preliminary survey for its proposed irrigation system and recommended the construction of three dams to irrigate 225,000 acres of land in La Salle county. Mr. Sylvester proposes dams 55 feet high and from 1000 to 1500 feet long each, one to form a reservoir covering 16,000 acres and irrigate 50,000 acres, another covering 20,000 acres and irrigate 75,000 acres, while the third will cover 27,000 acres and conserve sufficient water for 100,000 acres. The company is considering this plan in connection with its proposition as previously outlined, and expects soon to determine details. Its president is Matt Russell of Cotulla, and he is also interested in a proposition to irrigate 50,000 acres of land at San Saba, Tex., where the engineers, Miller and Conrad, are now at work.

Strength in Southern Iron.

Matthew Addy & Co. in their market report for June 29 said:

"With furnaces selling their make and shipping out on old orders more than their current output, the pig-iron situation is good. In the South it is evident that before many months there will be a shortage of iron. In fact, in Birmingham today there is the strongest market in the country, and ironmasters there are confidently predicting a price of \$14 for No. 2 by the end of the year. In the South only one furnace company has any considerable stock of iron, and that has been reduced in four months to one-third of its original proportions. Most of the other companies are having difficulty in keeping up to contract deliveries."

To Grow Figs.

"The Orchards" has been incorporated with \$50,000 capital stock to grow figs and establish fig-preserving plants near Charleston, S. C. It is planned to develop about 2000 acres, planting tracts of five acres, each acre having 1000 trees. Fifty thousand trees will now be planted. G. D. Altman of Charleston and C. M. Griffing of Jacksonville incorporated the company. Mr. Griffing is secretary of the Griffing Bros. Co., with extensive nurseries in Florida, Texas, etc.

Big Building at Louisville.

[Special Correspondence Manufacturers Record.]

Louisville, Ky., June 21.

There is more building actually under way, more building being planned and better prospects ahead than ever before in the history of this city. While the substantial work of erecting smaller structures, such as residences, factories and minor mercantile houses has been going on as before, giving a splendid foundation to build upon, the erection of imposing office buildings in the central business district has been the real feature of the situation.

Among the noteworthy buildings which have just been put to use are the Realty Building, an 11-story office structure; the Hotel Henry Watterson and the Starks mercantile building. Those now going up are the 18-story Inter-Southern Life Building, the \$1,000,000 city hospital, the seven-story Y. M. C. A. building, the Weissinger-Gaulbert apartment-house, 10 stories high, and the Republic Building, an 11-story office structure to be owned by the Great Southern Fire Insurance Co., now being organized in Louisville. Those which are to be begun at once are the 15-story Starks building at Fourth avenue and Walnut, to be erected by John P. Starks; the 25-story office building of the Southern National Life Insurance Co. at Fourth avenue and Market street, and probably a theater and mercantile building at 5th and Walnut streets by Detroit interests which recently secured a valuable corner site at that intersection.

The city's fiscal year terminates August 31. It is practically certain that the total for this fiscal year will aggregate more than \$5,500,000, with a good chance that the total will exceed the record mark of \$5,623,527 hung up for the preceding year.

The Realty Building was erected in record time. Ground was broken for the building on August 1, 1911, and on March 20, 1912, the first tenant moved in. The building is of steel frame, gray Roman brick walls, marble facing for the first two stories and marble trimming to the roof, and reinforced concrete floors. The building was financed by the Lewman-Cox Realty Co., and the general contract was awarded to the Falls City Construction Co. The steel work was done by the Louisville Bridge & Iron Co. of Louisville, and the reinforced concrete floors were built by the National Concrete Construction Co., also of this city. Other material for the structure was supplied by the following: Brick, the Ohio Mining & Manufacturing Co., Cleveland, O.; marble, the Blue Ridge Marble Co., Nelson, Ga.; roofing and metal work, Boulter Cornice & Roofing Co., Louisville; interior finishing, Louisville Planing Mill Co., Louisville; plumbing and steam fittings, the Laib Company, Louisville; elevators, the Otis Elevator Co., Chicago; tile work and lighting fixtures, the Heger Mantle Co., Louisville.

The new Hotel Henry Watterson, a structure which now represents an investment of almost \$1,000,000, is an indication of the growth of Louisville at large, as well as of her building trades. A syndicate of local capitalists headed by James P. Gamble of the Home Merchants' Trading Association and Sam P. Jones, former president of the Commercial Bank & Trust Co., formed the Henry Watterson Realty Co., which purchased the property with a frontage of 100 feet and financed the erection of the hotel after arranging for a long-term lease of the house to the Henry Watterson Hotel Co. The hotel company is headed by J. B. Pound of Chattanooga,

Tenn., the lessee of several big hosteleries in the South. Capt. Brinton B. Davis of Louisville designed the Watterson. The hotel is thoroughly fireproof, with reinforced concrete frame, reinforced concrete and tile floors, and walls made of Mission brick. The contract for the erection of the building was awarded to Caldwell & Drake of this city, who handled all of the work on the job, contracting only for materials. The brick was supplied by the Southern Brick & Tile Co. of Louisville, and the stone and marble required for the elaborate interior and exterior trimmings were furnished by the Peter & Burghard Stone Co. of Louisville. Other equipment

floors. Twenty-five thousand barrels of Portland cement were used.

The A. Bentley & Sons Company is doing all the work on the hospital job, contracting only for supplies. Material contracts were placed with the following: Cement, J. B. Speed & Co., Louisville; sand and gravel, Ohio River Sand Co., Louisville; brick and tile, Southern Brick & Tile Co., Louisville; the Louisville Brick Co., Louisville, and the Hoosier Brick Co., Jeffersonville, Ind.; structural iron, Riverside Bridge Co., Martin's Ferry, O.; ornamental iron, Dow Wire and Iron Works, Louisville; reinforcing bars, Carnegie Steel Co., Pittsburgh, Pa.; stone and marble, Peter-Burghard Stone Co., Louisville. Fitzpatrick & Hoefner of Columbus, O., have contracted to supply the mechanical equip-



INTER-SOUTHERN LIFE INSURANCE CO. BUILDING.

contracts are as follows: Radiators, the American Radiator Co., Chicago; elevators, the Otis Elevator Co. of Chicago.

Louisville voted in favor of a million-dollar bond issue for the erection of a new City Hospital in the fall of 1910. The hospital itself, that is, the actual erection and equipment thereof, is costing the municipality approximately \$800,000, leaving a surplus of \$200,000 out of the original bond issue to start the institution in its work. D. X. Murphy & Bro. of Louisville were selected as architects for the institution, and A. Bentley & Sons Company of Toledo, O., whose bid was \$606,000, are the contractors. The hospital is composed of 11 buildings, grouped so as to be easily intercommunicable and plotted so as to conform best to the dimensions of an entire city block. The institution will provide a number of features absolutely distinctive and original, and is expected to be one of the finest hospitals of its kind in the entire country, if not in the world. The buildings have foundations of solid concrete masonry, brick curtain walls and tile and reinforced concrete

ment for the hospital. The Columbus firm has placed the following subcontracts for equipment: Radiators, the American Radiator Co., Chicago; boilers, tanks and ice machinery, the Henry Vogt Machine Co., Louisville; engines, the Ridgeway Engine & Dynamo Co., Chicago; motors and generators, the James Clark, Jr., Electric Co., Louisville; 500 sets of plumbing and bath fixtures, Ahrens & Ott Manufacturing Co., Louisville.

Various other supply contracts have been let for the new institution as follows: Pipes and drainage equipment, the A. M. Beyers Company, Pittsburgh, Pa.; pumps, the Henry Worthington Company, Philadelphia, Pa.; elevators, the American Machine Co., Louisville; laundry machinery, the American Laundry Machinery Co., Chicago; watchman's clock system, Herman C. Korfhage, Louisville; deep-well system and equipment, W. F. Cook, Louisville; galvanized sheets, the American Rolling Mill Co., Middletown, O.; temperature regulation system, the Johnson Service Company, Milwaukee, Minn. The contractors sublet the electrical work to the Sanborn Electric Co. of Indianapolis, Ind.

The new apartment-house owned by the Weissinger-Gaulbert Realty Co. is almost ready for occupancy. It was designed by McDonald & Dodd, architects, of Louisville. Its frame is of reinforced concrete, with latticed girders used in the columns to minimize the space occupied by these supports. The walls are of buff brick, elaborately trimmed with cut stone. A parapet suggesting the upper works of an ancient castle surmounts the roof and surrounds the serial garden with which the structure is equipped. The Selden-Breck Construction Co. of Louisville and St. Louis has built the Weissinger-Gaulbert building. This firm handled the general contract, supplying all necessary labor. A subcontract for extensive heating, ventilating and refrigerating equipment was awarded to the Evans-Almirell Company of Chicago, and the elevators were contracted for with the Otis Elevator Co.

The 18-story office building of the Inter-Southern Life Insurance Co. of Louisville is now being completed. It was designed by Architect Brinton B. Davis of this city, and is representative of home enterprise throughout, being financed by a local insurance company and having been erected by the Selden-Breck Construction Co. of Louisville and St. Louis. The cost of the structure is approximately \$1,000,000. It is a steel frame, with buff brick walls and terra-cotta floors and interior partitions. The two lower floors and the cornices and outside pillars are liberally ornamented with cut stone, making the edifice one of the most imposing in the South. The structural iron work was done by the Noelke-Richardson Iron Co. of Indianapolis, Ind. In so far as was possible, the general contractors utilized materials and labor from Louisville and the South. Among the principal contractors and material men who shared in the work were: Plumbing, the Attlesby-Dwyer Plumbing Co., Indianapolis, Ind.; heating plant, the Newberry Electric Co., St. Louis, Mo.; electric apparatus and wiring, the Hatfield Electric Co., Indianapolis, Ind.; stone and marble, the Peter-Burghard Stone Co., Louisville; fireproofing and tiling, the P. Bannon Sewer Pipe Co., Louisville; interior finishings, the Alfred Struck Company, Louisville; ornamental iron work and roofing, the Noelke-Richardson Iron Co., Indianapolis, Ind.; terra-cotta, the St. Louis Terra-Cotta Co., St. Louis, Mo.; red brick, the Southern Brick & Tile Co. and the Hydraulic Brick Co., Louisville. The contract for the boilers to be installed in the heating plant was awarded to the Henry Vogt Machine Co. of Louisville.

About a year ago the Y. M. C. A. workers in Louisville instituted a campaign to raise \$350,000 by solicitations of public-spirited citizens, and the amount was oversubscribed. McDonald & Dodd of Louisville designed the home, and a big lot on the corner of Third avenue and Broadway was purchased. This property has been cleared and the reinforced concrete frame of the building is now being erected by Wells Bros. of Chicago, prominent engineers. Shattuck & Hussey of Chicago, consulting architects, have conferred frequently with McDonald & Dodd with reference to the detailed construction. The concrete frame, which is now being erected, is seven stories high, with a basement floor extending underneath the entire structure, making it practically eight stories in height. The building fronts for 145 feet on Broadway and 160 feet on Third avenue. The walls are to be of cherry red brick laid in black mortar and trimmed with cut stone from the foundation to the roof.

The Republic office building, of an estimated cost of \$300,000, will be the home office of the Great Southern

Fire Insurance Co., and is to be owned by the Great Southern Fire Insurance Realty Co. It will be 11 stories high, with a concrete frame and a most unusual exterior. The walls are to be faced with enameled brick, and the windows and cornice trimmings will be of finely-cut limestone or tile to provide exterior surfaces which will reflect the lights of the city at night as well as during the day, making the structure one of the show points of the business section. General business offices will constitute most of the building, after spacious accommodations for the Great Southern Fire Insurance Co. have been provided. Joseph & Joseph, the architects, have drawn the plans. The contract for the reinforced concrete frame has been awarded to the H. H. Snyder Company.

Early in July bids will be opened for the erection of a skyscraper by a syndicate of capitalists headed by John P. Starks, one of the leading business men of Louisville, upon a big lot bought a couple of years ago for \$300,000. D. H. Burnham & Co., Chicago architects, were engaged to draft plans for the structure. McDonald & Dodd of Louisville are to be supervising architects. The building will be 15 stories in height, covering ground which fronts for 82½ feet on Walnut street and 160 feet on Fourth avenue, making it the largest office building in the city. A steel frame, covered with buff brick walls and elaborate cut-stone trimming, will be provided.

A building to be owned by a subsidiary of the Southern National Life Insurance Co. and to be the home office of that concern is to be 25 stories high, and will be modeled along the lines of the famous Woolworth building in New York city. President Edward L. Williams and other officers of the insurance company have announced that Joseph & Joseph of Louisville will design the big structure, the selection being made after the submission of sketches. The general outline of the skyscraper, following along the lines of the Woolworth in Gotham, has been approved. It will have all the earmarks of the "needle" skyscraper being built upon property only 68x45 feet in dimension. From the ground to the sightseeing tower, which promises to become one of the show-places of Louisville, the distance will be 290 feet. A steel frame for the structure will be finished with brick and stone walls, the upper stories converging to a dome and tower. The estimated cost of the work is \$500,000, and the members of the Southern National Life Insurance Co. propose to have the enterprise in shape to commence active operations next spring when the site has been cleared.

Two other buildings which will cost hundreds of thousands of dollars apiece are in embryo in Louisville. George C. Epstead and Adolph Senstewald, prominent business men of Detroit, Mich., have purchased a piece of property on the southwest corner of Fifth avenue and Walnut street, fronting for 159 feet on Walnut and for 130 feet on Fifth avenue and Center streets, from the Underwriters' Realty Co. for \$150,000. The new owners of the property are planning the erection of a \$250,000 theater and business block upon it. The theater is to be the prime feature, with a seating capacity of about 3000 persons. Stores and general offices will occupy the remainder of the structure.

A syndicate of local capitalists headed by Louis Seelbach, Frank Fehr and others recently took over the corner lot now occupied by the W. H. McKnight residence at the intersection of Fourth avenue and Broadway, and will improve it by the erection of a small business block at a moderate cost.

The smaller business enterprises have progressed in a manner commensurate with the advance of their bigger brethren. The Norton estate is completing a five-story building for general business purposes on the southwest corner of Fourth avenue and Market street. John P. and Isaac Starks erected a handsome five-story business block at 654 S. Fourth avenue, near Broadway, and opened it for occupancy a few months ago. Each of these structures approximates \$100,000 in cost. Then there is the Gutman site at Fourth avenue and Green street, to be supplied with a new building at a cost of many thousand dollars by the H. H. Snyder Company. The old Herald block on Market street, near Fourth avenue, and the Baird headquarters on Main street, near Fifth avenue, both destroyed by fire during the past year, are being re-modeled and again put into commission for general business purposes.

G. D. CRAIN, JR.

SUCCESSFUL CO-OPERATION.

Truckers of the Norfolk Section to Have Headquarters.

The Southern Produce Co., an organization of nearly 400 active successful truckers in the Norfolk section, has had a continuous existence as an organization of farmers for more than 40 years; in fact, it is almost as old as the trucking industry. For many years it operated under the head of "Farmers' Alliance" and "Grange," finally evolving into the more modern organization named above.

The company is about to erect a building in Norfolk for its permanent home. The site has been purchased for a sum just a little short of \$50,000 and paid for in cash. The plans are drawn and bids received for a six-story building, with basement. The size of the structure is 46x72 feet; the material, brick, white, with terra-cotta trimmings. Is to have all modern improvements—gas, electricity, heat, electric elevators, etc. The first story will be used for offices of the company, lobby and two storerooms. The latter will be for rent. The second, third, fourth and fifth stories will be arranged for offices, and the sixth story will be used as an assembly-room and committee-rooms for the use of the company. The building is to cost a little less than \$75,000. Bids for the erection of the building are in, and the contract is about to be let. It is at the corner of Commercial Place and Water street, near the ferries, conveniently located for the truckers from both sides the harbor. The purchase of such a valuable lot and the erection of such a building by a farmers' organization, paying cash for the property, is a monument erected to successful co-operation among tillers of the soil.

A. JEFFERS.

A \$600,000 Irrigation Company.

The Mountcastle Land & Irrigation Co., Fort Worth, Tex., has been incorporated by G. C. Mountcastle and R. I. Merrill of Fort Worth, and Sol Mayer of Denver. Its directors are the incorporators and Joseph Rosenbaum, Fred Uhlman, A. Richard Frank and others of Chicago.

Coosa River Company.

The Coosa River Electric Power Co., whose plans for a water-power development were outlined last week, has its offices in the Woodward Building, Birmingham, Ala.

The North Carolina Geological and Economic Survey has prepared a splendid folding map of the State from the base map compiled by the United States Geological Survey in co-operation with State authorities.

Model Drainage in Louisiana

[Special Correspondence Manufacturers Record.]

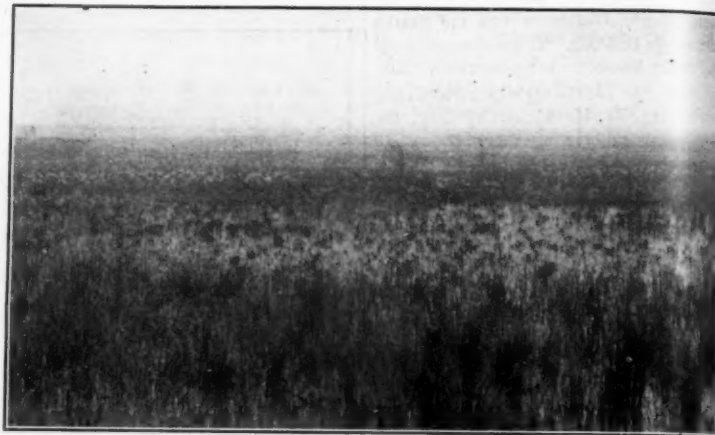
Gueydan, La., June 27.

Sub-district No. 1 of the Gueydan drainage district of Vermilion parish, Louisiana, is the first reclamation unit of 5600 acres completed by the White Lake Land Co. of its tract of 80,000 acres. It is the intention of the company to reclaim the entire tract in units of three miles square, comprising about 5760 acres. Each unit is to have its own pumping plant, and is to be connected with all the other units and with the main canal to White Lake by means of locks, thus giving the entire tract water transportation through the intercoastal canal with the

for the first mile on the south end, narrowing to 20 feet on the north end.

It has been found that six feet depth of canal is not sufficient to afford proper transportation, although ample for drainage purposes. It is the intention to deepen all canals to eight feet, excepting the main reservoir canal, which is 10 feet.

Public roads are constructed running north and south every half mile midway between the canals. The tract is divided into 20 and 40-acre lots, numbered from 1 to 162. Each lot is divided into 10-acre tracts by means of small drainage or field ditches running east and west, 330



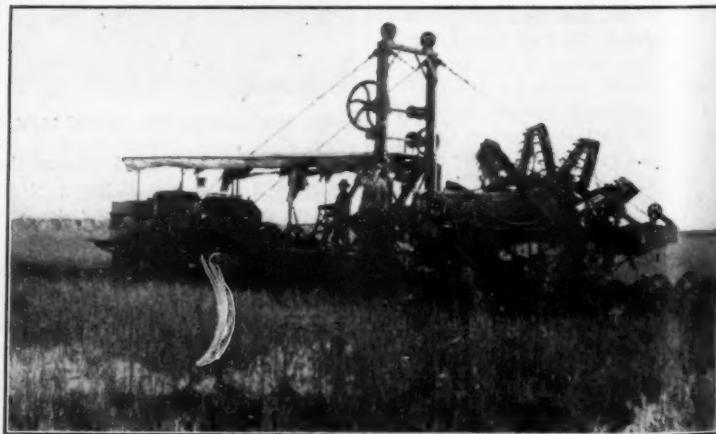
VIEW OF UNRECLAIMED LOUISIANA LAND.

Gulf and all parts of the State having water transportation.

The work of reclamation of sub-district No. 1 was begun February 1, 1911, and has just recently been completed. The method of reclamation of these lands consists in throwing up a levee around the unit to be reclaimed. In the construction of the levees there is excavated a canal on the interior of the units, which serves the purpose of a reservoir for the water drained from the land and also for the purposes of transportation. The main reservoir canal on the south side of the tract is 50 feet wide by 10 feet deep. The

feet apart, constructed by means of gasoline traction ditchers between the canals and public highway. These field ditches are four feet wide by three and one-half feet deep.

The pumping plant is on the southeast corner of the tract, the water being pumped into the main drainage canal and into White Lake. The pumping plant consists of two 54-inch Worthington pumps, operated by Hamilton Corliss engines in independent units, and has a pumping capacity of approximately 200,000 gallons per minute. The pumping plant is installed in a building 40x100



DITCHER PREPARING LAND FOR RECLAMATION.

east canal, which is used largely for transportation, is 35 feet wide and 6 feet deep, but will be deepened to 8 feet. The north levee is made by a canal constructed from the outside of the unit, which canal affords water transportation to outside waters. In making the west levee an interior canal is constructed six feet deep. The first mile from south end is 30 feet wide, and for the next two miles the canal is 20 feet wide. The interior canals running north and south are constructed every half mile. There are five of these canals, each 6 feet deep and 30 feet wide

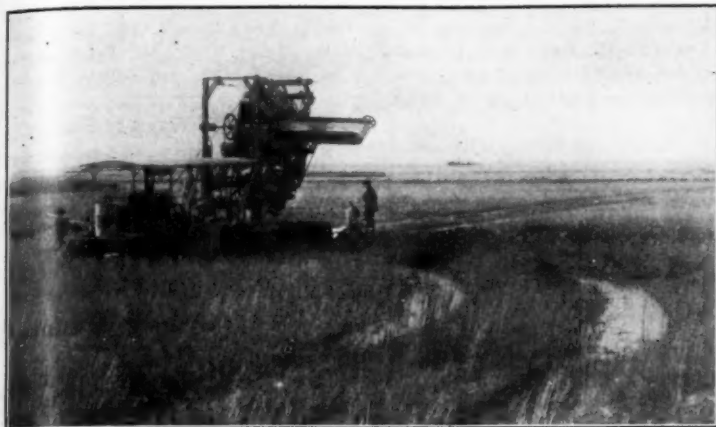
feet, which is of concrete and steel construction.

This is the largest reclamation unit yet completed in Louisiana, and may be said to be an unqualified success from both practical and commercial points of view, as the entire unit has been disposed of to the best class of farmers of the middle West, and although the pumps were put in operation only about the middle of March, three gasoline traction plows are now at work on the land, and not less than 1000 acres will be under cultivation this season.

One hundred and sixty acres in the southeast corner of the tract is reserved for townsite purposes. It is proposed to construct a model city. "Florence" is the name of the new town, which has already a postoffice and some 20 residences, and a

tion of Louisiana lands and the demand for such lands by Northern farmers will lead to the rapid reclamation and development of several million acres of rich wet land of this State.

Under the State drainage law there has



PROGRESS OF DITCHER IN RECLAMATION.

population of about 150. A force of 200 men has been employed on this work for the past 18 months.

So favorably were the Northern farm-

been issued \$172,000 of bonds, which provide funds for the reclamation of this unit. These bonds, the first issued under the new drainage law of Louisiana, were sold

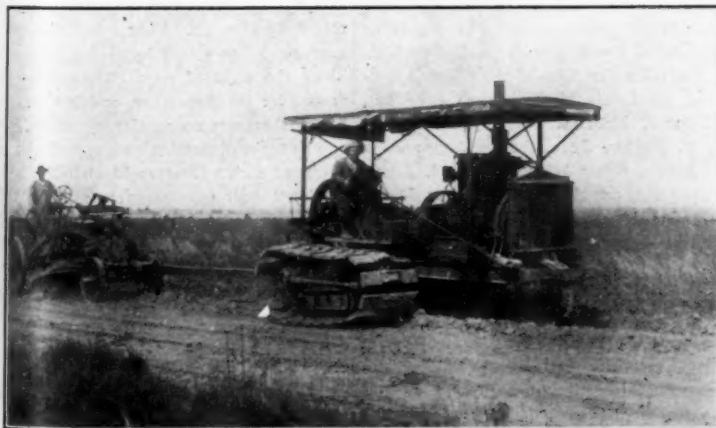


TRACTORS AT WORK WITH DISC PLOWS.

ers impressed with the future possibilities of these alluvial lands and the absolute control of water for drainage and irrigation purposes that this unit was practically all disposed of before the water was pumped off.

to A. L. Arpin of Grand Rapids, Wis. This work is being done under the supervision of the State Board of Engineers.

JOHN G. NEELIS, Secretary
Gueydan Drainage District.



GASOLINE TRACTOR GRADING ROAD.

The company developing this tract has engaged an agricultural expert, and has started an experimental and demonstration farm. It is determined that every possible advantage will be afforded to the new settlers, and the chance of crop failure will be reduced to a minimum.

It is believed that the success of this proposition and the complete demonstration of the practicability of the reclama-

The Mississippi Cottonseed Crushers' Association elected last week at Jackson G. W. Covington of Hazlehurst, president; E. Cahn, Sr., of Meridian, vice-president; H. L. McGeorge, Jackson, secretary-treasurer, and J. B. Perry, T. M. Denham, J. W. McRaven, Joseph Sloane, T. J. Poitevant, J. H. Turberville and H. C. Forrester, executive committee.

GOOD ROADS

WEEK'S HIGHWAY RECORD.

Progress in Southern Road and Street Improvement.

[Full details of highway undertakings are given in the Construction Department.]

Bonds Voted.

Marquez, Tex.—Leon county voted \$30,000 bond issue for road construction.
Norton, Va.—Town authorized \$20,000 bond issue for street improvements.
Paris, Tex.—City voted \$100,000 bond issue for street paving.
Talladega, Ala.—City votes July 8 on \$25,000 bond issue to pave public squares.
Washington, Ga.—City voted \$30,000 bond issue to grade and pave streets and sidewalks.

Bonds to Be Voted.

Dublin, Va.—Dublin district of Pulaski county votes July 30 on \$100,000 bond issue for road construction.
Franklin, Tex.—Precinct No. 5 of Robertson county votes July 23 on \$100,000 bond issue for road construction.

Contracts Awarded.

Athens, Tenn.—McMinn county awarded contracts for 111¼ miles of road.
Carrollton, Ala.—Pickens county awarded contract at \$7351.60 to grade and surface with sand-clay four miles State-aid road.
Catonsville, Md.—Eden Paving Co. has contract to improve avenues of Eden Terrace; cost about \$15,000; one mile road; two miles gutter and sidewalks.
Hickman, Ky.—City awarded contract at about \$14,000 to pave main streets and gravel others.
Little Rock, Ark.—City awarded contract at about \$41,000 to lay Dolarway pavement on 10th street.
Memphis, Tenn.—City awarded contracts at \$22,041.43 for asphalt paving.
Parkersburg, W. Va.—City awarded contract at \$17,460.31 to pave portions of several streets with Townsend brick.

Contracts to Be Awarded.

Amesville, La.—Jefferson Land Co. will construct shell road six miles long.
Athens, Ala.—City receives bids July 5 for grading and constructing 8000 square yards cement sidewalk, 725 square yards vitrified brick crosswalk and 650 square yards crushed limestone screening sidewalk.
Decatur, Ala.—City will construct sidewalk and street paving to cost about \$20,000.
Fort Worth, Tex.—City will pave 9300 square yards; material to be rock asphalt, vitrified brick or Bermudez Lake or Trinidad Pitch sheet asphalt; will also pave 43,900 square yards; material to be bitulithic, bituminous concrete, vitrified brick or granitoid.
Fort Worth, Tex.—Directors Masonic Orphans' Home will construct concrete walks from main building to tracks of Fort Worth.
Meridian, Miss.—City receives bids July 19 for constructing 20,000 square yards cement sidewalks, 1700 brick street crossings and 10,000 cubic yards grading.
Moulton, Ala.—Lawrence county receives bids July 10 for constructing 11½ miles water-bound macadam road.

New Orleans, La.—City receives bids July 8 for constructing subsurface drains, culverts, curbs, gutter bottoms, sidewalk pavements and paving with pitch lake asphalt.

Oneonta, Ala.—Blount county receives bids July 11 for grading, draining and surfacing with chert one mile of State-aid road.

Opelika, Ala.—Lee county receives bids

July 20 for grading and surfacing with top soil six miles of road; cost \$8000.

Princeton, W. Va.—Mercer county receives bids August 13 for grading and constructing road in Rock District, distance of 1000 feet.

Sherman, Tex.—Grayson county receives bids July 12 for constructing system of highways, including bridges, culverts, etc., for Road District No. 2.

Tazewell, Va.—Tazewell county receives bids July 9 for macadamizing 10.70 miles of road.

Towson, Md.—Baltimore county receives bids July 18 for improving section of Garrison avenue, about 700 feet, and improving section of North avenue with combination curb and gutter and macadam, about 700 feet.

Washington, D. C.—District of Columbia receives bids July 12 for laying asphalt block pavements.

Washington, D. C.—District of Columbia receives bids July 12 for paving various streets and avenues with sheet asphalt and bituminous macadam during 1913.

Waynesville, N. C.—Cathay Construction Co. will construct four miles of road.

FLOYD COUNTY ROADS.

Intense Interest in Projects Centering in Macon.

[Special Cor. Manufacturers Record.]

Rome, Ga., June 27.

In the plans for good roads and in those actually constructed in Floyd county—this city being the seat—one finds a striking example of the intensity of the good-roads movement that is prevailing throughout the South. Said W. M. Gammon, chairman of the roads and means committee of this rich Georgia county:

"Our good-roads movement begun some 20 years ago. Over \$1,000,000 has been spent during that time, yet with all that time and money expended there was scarcely anything to show for it four or five years ago. Then, with up-to-date equipment and scientific methods, we did things in road construction that has not only astonished the natives, but has called the attention of the outside students of this phase of development to our county."

One of the main roads constructed in the county is the one which has been designated as the official route through this county of the Chattanooga, Atlanta and Jacksonville highway. From one side of the county to the other the mileage is 35. The highway has just been recently outlined and exploited. From Chattanooga to the Georgia line it was built by enthusiastic Chattanoogaans. Here, after the project had been sanctioned by the Georgia State Highway Association, its construction was taken up by Floyd county officials. So far has this particular part of the county good-roads movement work progressed that it will be finished by the middle of August. The main macadamized average width of the road is 20 feet, but the outer edges of dirt worked road will make the extreme width 30 feet. In all, some eight steel and concrete-constructed bridges and 80 concrete culverts are being constructed on this particular stretch of road. Every thoroughfare leading from Rome to the county line is macadamized in keeping with the highway stretch.

Summing up, one finds that Floyd has 150 miles of the best macadamized, best culverted and best steel-bridged roads to be found anywhere. And all this has come to the people of Floyd and to outsiders, too, who are wont to enjoy the pleasure, without one cent of extra taxation or the voting of a single bond. The county has for years had a surplus revenue, and the gist of it has gone into permanent highways. ROY G. BOOKER.

RAILROADS

[A complete record of all new railroad building in the South will be found in the Construction Department.]

ALABAMA'S NEW RAILROAD.

Cochrane's Two Lines Connected Up, Making a North and South Route.

The Alabama, Tennessee & Northern and the Tombigbee Valley railroads have just been completed, and the "Cochrane Lines," as they are often called, are now in position to conduct business between Calvert and Reform, Ala., a distance of 200 miles.

Actual connection of the rails of the two roads, which form a north and south line in the western part of Alabama, was made on June 21, as noted in last week's issue of the MANUFACTURERS RECORD. Each is about 100 miles long.

This project was started several years ago by John T. Cochrane when he built the Carrollton Short Line Railroad for 10 miles from Reform to Carrollton, Ala. He then changed its name to Alabama, Tennessee & Northern, and continued the extension south through the western counties of the State. While this was being done he started another line from Nannahubba, on the Tombigbee River, about 30 miles from Mobile, north, and has been continuously at work on these two roads for several years. The connection of the two is a long step toward Mr. Cochrane's original idea to have the shortest railroad between the Gulf and the Alabama coal and iron-ore fields.

This new railroad is constructed on standard lines, having nothing less than 60-pound rail, with quite a large mileage of 65 and 75-pound rail. The bridges and equipment are standard in every way. There are already 20 locomotives and quite a number of freight and passenger cars, but the road has recently purchased from the American Car & Foundry Co. 250 more freight cars, and is now passing on the specifications for three fully equipped passenger trains. Through service is to begin July 1.

The new territory opened by these lines is diversified, the lower end being through a rich timber region, the middle section through Choctaw and Sumter counties being thickly settled with good white farmers, and while it is known as an agricultural section, has millions of feet of virgin pine and hardwood timbers. There have already been located on about 60 miles of the line south of York, Ala., 20 or 30 sawmills, making an average of one every two or three miles. This, in addition to the rich farming section and the fact that the country is already settled up, guarantees an immediate revenue tonnage.

North from York the line runs for nearly 50 miles through the alfalfa belt of Alabama, and hundreds of cars of alfalfa are already being shipped. The remainder of this route from the Tombigbee River north to Reform, Ala., is through a well-populated superb farming country, this part having many thriving towns, and the development there is an index to what will follow all along the newer portion of the road. At Reform, the northern terminus, the line is within 20 miles of the coal fields and within 35 miles of actually operated coal mines. Just what direction the line will take north from Reform has not been announced.

John T. Cochrane is president and Wm. G. Cochrane vice-president of the line, with offices at Mobile.

Railroad Relief Figures.

The May reports of the Relief Departments of the Pennsylvania Railroad Sys-

tem show that during the month \$207,491.59 were paid in benefits to employees or their families. Since these departments for both the lines east and west of Pittsburgh were established the amount paid out in benefits has reached a total of \$33,329,221.46.

On the lines east of Pittsburgh and Erie during May payments to the amount of \$138,962.84 were made by the Relief Fund. In benefits to the families of members who died \$41,811.67 were paid, while to members incapacitated for work the benefits amounted to \$97,151.17. The total payments on the lines east of Pittsburgh since the Relief Fund was established in 1886 have amounted to \$24,138,952.83.

In May the Relief Fund of the Pennsylvania Lines west of Pittsburgh paid out a total of \$68,528.75, of which \$20,000 were for the families of members who died and \$48,528.75 for members unable to work. The sum of \$9,190,268.63 represents the total payments of the Relief Fund of the Pennsylvania Lines west since it was established in 1889.

EXTENSION TO CHARLOTTE.

Norfolk Southern's Western Line Under Construction from Raleigh.

[Special Cor. Manufacturers Record.]

Chamber of Commerce,

Raleigh, N. C., June 29.

The work on the Raleigh, Charlotte & Southern Railway is now reaching an interesting stage along much of the line, and at Raleigh, as well as at other places between here and Troy, large numbers of people are going to see the construction. It is now decided that the route will be from Troy to Charlotte by way of Mt. Gilead, the statement being made that this will save nearly 50 miles of work and a million dollars. By the line as now surveyed the distance between Raleigh and Charlotte is 152 miles, as against about 180 by the Southern Railway and 190 by the Seaboard Air Line.

At Raleigh a steam shovel is now cutting its way and has reached the point where this line will intersect both the Southern and Seaboard Air Line tracks, within 200 yards of the penitentiary. Another shovel is at Caraleigh Mills, and these two will cut four miles, Waugh, Calder & Co. having this subcontract. The general contract is held by Lane Bros., who between Varina, in this county, south of here, and Colon, on the Seaboard Air Line, have eight shovels at work. Between Colon and Troy this firm has seven other shovels cutting, and seven more are to be added on that section very soon.

The route by Mt. Gilead is found to be superior in every way to that by Concord. Orders have been given to push the work everywhere, and the contractors are making extremely good time along the part of the route on which they are working.

Raleigh's new ice plant, owned and operated by the Carolina Ice Co., was put in operation today. It is located on the Norfolk Southern Railway line, near the present freight yards of that railway. This road acquired considerable property to the southward of its present freight depot and yards, and will before long build spacious warehouses, etc.

FRED A. OLDS.

New Equipment, Rails, Etc.

Norfolk & Western has ordered 25 cars from the Harlan & Hollingsworth Corporation, Wilmington, Del.

Southern Railway has, it is reported, ordered 9000 tons of rails from the Maryland Steel Co., Sparrows Point, Md., and 16,000 tons from the Tennessee Coal, Iron & Railroad Co., Birmingham, Ala.

Chesapeake & Ohio Railway has ordered 25 Mikado locomotives from the American

Locomotive Co., New York, and will, it is reported, buy 25 more.

Pennsylvania Lines West are reported to have ordered 450 tons of bridge steel from the Mt. Vernon (Ill.) Bridge Co., and the Pennsylvania, for its Eastern lines, has ordered from the Fort Pitt Iron Works, Pittsburgh, 615 tons of steel for bridges.

Louisville, Henderson & St. Louis Railway has ordered three 10-wheel locomotives from the Baldwin Works, Philadelphia.

St. Louis & San Francisco Railroad has ordered 450 tons of bridge steel from the Wisconsin Bridge and Iron Works, Milwaukee, Wis.

A report from Gadsden, Ala., says that the Louisville & Nashville Railroad has placed a large order for light rails with the Southern Iron & Steel Co.

Kentucky Portland Cement Co. is reported to have ordered a locomotive from the Vulcan Iron Works, Wilkes-Barre, Pa. Southern Railway has ordered four dining-cars from the Barney & Smith Company, Dayton, O.

Pennsylvania's order for locomotives covers 32 consolidation and five Pacific type from its own shops at Altoona, Pa., and the order given to the Lima (O.) Locomotive Co. is for 13 switchers.

Deal's Island to Snow Hill.

J. W. West, Princess Anne, Md., secretary and treasurer of the Eastern Shore Power, Light & Railway Co., says that on July 8 the obtaining of right of way for its proposed trolley line for freight and passenger service from Deal's Island, Md., to Snow Hill, Md., about 40 miles, will begin.

Advices from responsible financial institutions indicate that the bonds of the company will be guaranteed as to principal and interest by a strong corporation which makes such business its sole aim. Preliminary reports from a consulting engineer have been so satisfactory that letters from the concerns referred to indicate success for the negotiations and a ready sale for the securities.

This railway will open up one of the best trucking sections on the Eastern Shore, and afford citizens within 30 miles of Deal's Island rapid transportation for seafood to Northern markets, and also make sections of Dorchester and other counties valuable trucking regions. It will connect at Princess Anne with the New York, Philadelphia & Norfolk Railroad, and at Snow Hill with the Delaware division of the Pennsylvania Railroad.

The other directors of the railroad company are Lewis M. Milbourne, president, Kingston, Md.; S. Frank Dashiell and J. T. Taylor, Jr., Princess Anne; John P. Moore, Snow Hill; Robert H. Jones, Upper Fairmount; H. C. Webster, Deal's Island, Md.; T. Blair Hankins and Walter A. Morrison of Baltimore.

Markets for Southern Products.

With a view to making the Southern Railway Co. as helpful as possible in the development of markets for commodities produced along its lines, President Finley has inaugurated the policy of having all agents of its freight traffic department at points outside of the Southeastern States submit reports as to the possibilities for developing markets for Southeastern products in the localities in which they are stationed. While they cannot act as selling agents in any way, he will be glad to receive suggestions as to ways in which they may be of practical aid in the creation of markets for the agricultural and industrial products of the territory traversed by the Southern Railway. Agents of the freight department are

at Boston, Mass.; New York, Buffalo and Rochester, N. Y.; Philadelphia and Pittsburgh, Pa.; Baltimore, Md.; Washington, D. C.; Cleveland, and Cincinnati, O.; Indianapolis and Evansville, Ind.; Chicago, East St. Louis, Peoria and Cairo, Ill.; St. Louis and Kansas City, Mo.; Detroit, Mich.; Minneapolis, Minn.; Omaha, Neb.; Denver, Col.; Little Rock, Ark.; Dallas, Tex.; San Francisco and Los Angeles, Cal., and Seattle, Wash.

Macon to Waverly Hall.

S. W. Hatcher, Sr., writes from Macon, Ga., about plans to build a railroad from Macon to Waverly Hall, Ga. He says that the new construction can be reduced to 55 miles by connecting at Moran with the Macon & Birmingham Railroad and using its tracks from there into Macon. It is desired to induce some company to build and equip a line from Moran to Waverly Hall via Ceres, Musella, Prattburg and Talbotton. At Waverly Hall connection would be made with the Georgia Midland Railroad, while the Atlanta, Birmingham & Atlantic Railway would be crossed at Talbotton.

Mr. Hatcher further says that a road over this route would traverse as fine a section of country as can be found in Georgia, one which is now wholly without railroad facilities and is largely occupied by prominent farmers. There would be two creeks and one river to cross, the latter being about 75 yards in width, and the former about 35 yards each. Country is rolling. People along the route are much interested, and would donate right of way. No organization is yet formed. Secretary Hyman of the Macon Chamber of Commerce may be addressed concerning the plans.

Gets Dispatching Telephones.

The Washington & Old Dominion Railway Co., operating a line from Georgetown, D. C., to Bluemont, Va., approximately 55 miles, and which was formerly a division of the Southern Railway, has placed an order with the Western Electric Co. for apparatus to be used in installing a complete telephone train dispatching system. This will be the first of its kind used on this road.

The system will comprise 15 No. 101-B selector sets, containing the standard Western Electric No. 50 type selector. The telephone sets will be the "folding gate" type transmitter arms, which possess a great advantage over desk sets for this class of work. Four selectively-operated semaphores will be placed at points along the right of way. These are controlled by the dispatcher, and are located where there are no regular operators.

The train dispatcher's office will also be equipped with a Western Electric No. 1800 sectional unit type magneto switchboard. From this board 15 telephone circuits will radiate, the arrangement being such that the dispatcher can control the train wire and switchboard lines together or separately.

Laurel Street Railway.

W. A. Smith, Hendersonville, N. C., writes concerning the proposition of the Laurel Street Railway to electrify its present dummy line from Hendersonville to Laurel Park that a reliable party has offered to erect a steam plant to develop 150 horse-power, payment to be made in common stock. This would leave nothing to be done excepting to erect the overhead work, bond the rails and purchase cars. The proposition is to issue \$10,000 of preferred stock and sell it to finish construction.

The company will be in the market for electric cars and trolley material, but not

until the
operating
of line, but
more than

An

The Off
Stations,
authoritat
has been
fishing

Louis, I

cation has
three and
in size for
about 300

covering
it is said,
United St

performa
New and
ded to th

inspection
companies

Ja

Contract

Texas &
Texas Bu

the exten
to Salesv

there with
& North

provides t
all mater

extension
the steel

company
East, and
Texas.

Bond

The M
road Co.,
homa Ci

\$2,000,000
bonds, th

in advan
in progre

Lea

The qu
produced
short ton

lead 178,
The total

\$30,064.8
\$1,899.81

in 1911
State in

in the fol

On
South

Alba-Neck
Ash Grove

Autora...
Carl June

Carthage...
Cave Spr

Duenweg...
Granby...

Joplin...
Oronogo...

Sarcocoe-I...
Sherwood

Spring Cl...
Springdel

Spurgeon...
Stotts Cl

Webb Cl...
Westwort

Zelotte...

Centr
State

1911...
1910...
1909...
1908...
1907...

In 19
pounds of
49,867 f

\$26,430.
The lo
during th
a declin

until the stock is sold. The road is now operating something more than two miles of line, but the present plans will not cover more than 2½ miles.

An Official Freight Guide.

The Official List of Open and Prepay Stations, No. 8, which is described as an authoritative and efficient freight guide, has been issued by the Station List Publishing Co., 643 Century Building, St. Louis, F. A. Leland, agent. This publication has existed for a little more than three and a half years, and has increased in size from a book of 188 pages, covering about 300 railroads, to one of 582 pages, covering 1097 railroads, and embracing, it is said, practically every railroad in the United States, Canada and Mexico which performs the duties of a common carrier. New and valuable features have been added to the work, which merits careful inspection and consideration by railroad companies and shippers.

Jacksboro to Salesville.

Contract has been awarded by the Gulf, Texas & Western Railway Co. to the Texas Building Co., Fort Worth, Tex., for the extension of its line from Jacksboro to Salesville, Tex., 23¼ miles, connecting there with the Weatherford, Mineral Wells & Northwestern Railway. The contract provides that the contractor is to furnish all material and labor to complete the extension ready for operation, excepting the steel rails and fastenings, which the company has already purchased in the East, and which are now being shipped to Texas.

Bonds for New Construction.

The Missouri, Oklahoma & Gulf Railroad Co., according to a report from Oklahoma City, has filed a deed to secure \$2,000,000 of 5 per cent. second mortgage bonds, the proceeds of which will be used in advancing the new construction now in progress in Oklahoma.

MINING

Lead and Zinc in Missouri.

The quantity of metal concrete of zinc produced in Missouri in 1911 was 122,515 short tons, valued at \$13,966,710, and of lead 178,868 tons, valued at \$16,098,120. The total value of the two outputs was \$30,064,830, an increase over 1910 of \$1,899,810. The production by districts in 1911 compared with the totals of the State in the preceding four years is shown in the following table:

District.	Quantity.	Value.	Quantity.	Value.
Southwest Missouri:				
Alta-Neck City.....	263	\$23,590	8,826	\$1,006,164
Ash Grove-Everton.....	41	3,690	41	4,674
Aurora.....	79	7,110	2,344	267,216
Carl Junction.....	54	4,860	2,479	282,606
Carthage.....	80	7,200	1,353	154,242
Cave Springs.....	248	22,320	2,411	274,854
Duenweg-Porto Rico.....	1,896	170,640	9,695	1,105,230
Granby.....	523	47,070	5,693	649,002
Joplin.....	4,915	412,350	22,667	2,584,038
Oronogo.....	1,171	105,390	5,489	625,746
Saxville-Reeds.....	9	810	1,326	151,164
Sherwood-Thoms Station.....	513	46,170	6,292	707,028
Spring City-Beef Branch.....	581	52,290	2,008	228,912
Springfield.....	184	16,560	514	58,596
Spurgeon.....	749	67,410	184	20,976
Stotts City.....	35	3,150	451	51,414
Webb City-Carterville-Prosperity.....	19,694	1,772,460	49,282	5,618,148
Wentworth and Barry county.....	.....	.....	265	30,210
Zincite.....	80	7,200	1,052	119,928
Central and Southeast Missouri.....	31,114	2,800,290	122,282	13,940,148
State total:	147,754	13,297,860	293	36,562
1911.....	178,868	16,098,120	122,515	13,966,710
1910.....	161,016	14,169,408	129,589	13,995,612
1909.....	159,435	13,711,410	130,162	14,057,496
1908.....	144,459	12,134,556	107,404	10,095,976
1907.....	138,675	14,699,550	116,752	13,776,736

In 1911 Missouri produced 640,411 pounds of copper, valued at \$80,051, and 49,867 fine ounces of silver, valued at \$26,430.

The low prices paid for zinc concentrate during the first 10 months of 1911 caused a decline in the production of zinc. The

output of sphalerite was 217,812 short tons, compared with 232,341 tons in 1910. The production of zinc carbonate and zinc silicate concentrates was only 20,119 tons, which was less than in any year since 1907.

There was an increase in ore mined in the Southeast Missouri lead district. In the Joplin region the "soft ground" mines produced about the same quantity of ore in 1911 as in 1910, but the output of the "sheet ground" mines was about 800,000 tons less.

A large amount of development work was done in the Joplin region, and the high prices offered for zinc concentrates during the last two months of 1911, though too late to have much effect on the year's production, will probably cause much larger shipments in 1912.

A \$600,000 Coal Company.

The Brooke County Coal Co., Wellsburg, W. Va., has been incorporated with \$600,000 capital stock by Frank D. Pavey, 32 Nassau street, New York, and others. Mr. Pavey wires MANUFACTURERS RECORD as follows: "Acquired 3000 acres formerly belonging to Rex Carbon Coal Co.; property not in operation; no plans for development."

Grandin Lumber Co.

The Grandin Lumber Co. of Lenoir, N. C., and Tidoute, Pa., has begun the construction of its two-band mill and resaw, planing mill and box factory (on the Yadkin River and the Watauga Railway near Lenoir) for annual capacity of from 40,000,000 to 50,000,000 feet of lumber. It has more than 60,000 acres of land (in the foothills of the Blue Ridge Mountains) estimated to contain 710,000,000 feet of standing timber, 350,000 cords pulp and acid wood, 100,000 cords oak and hemlock tan bark and 3,500,000 railroad ties. The land is available for agriculture and grazing after the timber has been cut. It also contains minerals, iron predominating. The company is now constructing a railway (Watauga Railway Co.) between Lenoir and Wilkesboro, intersecting the timber. It has \$2,000,000 of bonds authorized, and is issuing \$1,600,000 as follows: \$725,000 to liquidate present debt; \$575,000 to construct saw-mill plant; \$300,000 for working capital. The Grandin Lumber Co.'s organization and general plans were announced several months ago by the MANUFACTURERS RECORD. W. J. Grandin of Tidoute, president; J. M. Hastings of Pittsburgh, vice-president; G. M. Grandin of Tidoute,

Quantity.	Value.	Quantity.	Value.
263	\$23,590	8,826	\$1,006,164
41	3,690	41	4,674
79	7,110	2,344	267,216
54	4,860	2,479	282,606
80	7,200	1,353	154,242
248	22,320	2,411	274,854
1,896	170,640	9,695	1,105,230
523	47,070	5,693	649,002
4,915	412,350	22,667	2,584,038
1,171	105,390	5,489	625,746
9	810	1,326	151,164
513	46,170	6,292	707,028
581	52,290	2,008	228,912
184	16,560	514	58,596
749	67,410	184	20,976
35	3,150	451	51,414
19,694	1,772,460	49,282	5,618,148
.....	.....	265	30,210
80	7,200	1,052	119,928
31,114	2,800,290	122,282	13,940,148
147,754	13,297,860	293	36,562
178,868	16,098,120	122,515	13,966,710
161,016	14,169,408	129,589	13,995,612
159,435	13,711,410	130,162	14,057,496
144,459	12,134,556	107,404	10,095,976
138,675	14,699,550	116,752	13,776,736

secretary; M. K. McMullen (president of American Window Glass Co.) of Pittsburgh, treasurer. Others interested are J. H. Reed of Pittsburgh, O. P. Lutz of Lenoir, W. W. Beatty of Warren, Pa.; E. J. Jones of Bradford, Pa., and F. D. Freeburn of Knoxville, Pa.

TEXTILES

[A complete record of new textile enterprises in the South will be found in the Construction Department.]

Correspondence relating to textile matters, especially to the cotton-mill interests of the South, and items of news about new mills or enlargements, special contracts for goods, market conditions, etc., are invited by the MANUFACTURERS RECORD. We shall be glad to have such matters at all times, and also to have any general discussion relating to cotton matters.

SOUTHERN TEXTILE PROGRESS.

Investment of About \$3,390,000 for Second Quarter of 1912.

There was a considerable increase of activity in adding to Southern textile manufacturing equipments during April, May and June, as compared to the first quarter of this year. The increase amounted to 23,132 spindles and a \$1,190,000 investment. All the reports for the second quarter resulted in 135,544 spin-

Name.	Location.	Spindles.	Looms.
*West Point Manufacturing Co.....	Shawmut.....	5,408	.....
Georgia.			
*Exposition Cotton Mills.....	Atlanta.....	16,000	400
*Newnan Cotton Mills.....	Newnan.....	13,312	.....
*Millstead Manufacturing Co.....	Conyers.....	612	.....
		29,924	400
North Carolina.			
*Ledbetter Manufacturing Co.....	Rockingham.....	2,500	.....
*Princeton Cotton Mill.....	Salisbury.....	3,000	36
*Ella Manufacturing Co.....	Shelby.....	5,184	126
*Harriet Cotton Mills.....	Henderson.....	10,000	.....
*Durham Hosiery Mills.....	Durham.....	10,000	196
*Pee Dee Manufacturing Co.....	Rockingham.....	3,000	.....
*Louis Manufacturing Co.....	Concord.....	2,000	.....
*Marion Manufacturing Co.....	Marion.....	22,528	541
*Monarch Cotton Mills Co.....	Dallas.....	2,000	.....
*Proximity Manufacturing Co.....	Greensboro.....	.....	100
*Barringer Manufacturing Co.....	Rockwell.....	3,000	.....
*Jennings Cotton Mills.....	Lumberton.....	2,000	.....
		65,212	942
South Carolina.			
*Carolina Mills.....	Greenville.....	12,000	250
Tennessee.			
J. Morrow and others.....	Prendergast.....	10,000	.....
*Brookside Mills.....	Knoxville.....	.....	200
Virginia.			
*Riverside & Dan River Mills.....	Danville.....	10,000	.....
*Twine Mill Corporation.....	Roanoke.....	3,000	.....
		13,000	.....
Total for first quarter of 1912.....		87,412	1135
Total for second quarter of 1912.....		135,544	1892
*Established mills increasing.			

Ridgedale Processing Co.

The Ridgedale (Tenn.) Processing Co. will be organized with a capital stock of not less than \$60,000 nor more than \$75,000 to build a mercerizing plant, for which a two-acre site has been purchased. It expects to elect W. Lane Verlenden of Darby, Pa., president, and Alford H. Thatcher of Piedmont, Ala., will be secretary-treasurer. Contract for warp mercerizing machinery has been awarded to the Butterworth Company of Philadelphia, and Lockwood, Greene & Co. of Boston have been engaged as the architects-engineers. This is the plant recently announced by the MANUFACTURERS RECORD as planned by officials of the Coosa Manufacturing Co. (cotton yarns) of Piedmont.

To Add 3000 Spindles.

The Twine Mill Corporation, Roanoke, Va., will add 3000 spinning spindles and finishing machinery for white and colored twine. It has ordered this new equipment, and expects to have it in operation in 30 days. The company will have a weekly capacity of 50,000 pounds of twine, operating 7000 spinning spindles and 3000 twister spindles, with 175 operatives. Its mill is partly driven by steam power and partly by electricity. Part of its production will be colored.

The Ella Addition.

The Ella Manufacturing Co., Shelby, N. C., has awarded contract to R. A. Brown's Sons, Concord, N. C., to erect its additional building (recently an-

dles and 1892 looms, requiring an investment of approximately \$3,390,000. These were the announcements of 21 companies, of which four were new enterprises, and three of those are to be under the direction of experienced cotton manufacturers. The 17 existing companies thus indicated are therefore adding 110,544 spindles and 1856 looms, at an expenditure of about \$2,763,000, while the 25,000 spindles and 36 looms of the four new enterprises require a \$625,000 investment.

There were no especially large or otherwise important cotton-mill propositions reported during the second quarter, the announcements being mainly the decisions of successful manufacturers to augment and improve their facilities in order to better and to meet the demands for their products. The largest investment of the three months is contained in the announcement of a North Carolina company, which plans additions that will result in a \$500,000 expenditure.

The quarter's reports may be briefly outlined as follows:

Name.	Location.	Spindles.	Looms.
*West Point Manufacturing Co.....	Shawmut.....	5,408	.....
Georgia.			
*Exposition Cotton Mills.....	Atlanta.....	16,000	400
*Newnan Cotton Mills.....	Newnan.....	13,312	.....
*Millstead Manufacturing Co.....	Conyers.....	612	.....
		29,924	400
North Carolina.			
*Ledbetter Manufacturing Co.....	Rockingham.....	2,500	.....
*Princeton Cotton Mill.....	Salisbury.....	3,000	36
*Ella Manufacturing Co.....	Shelby.....	5,184	126
*Harriet Cotton Mills.....	Henderson.....	10,000	.....
*Durham Hosiery Mills.....	Durham.....	10,000	196
*Pee Dee Manufacturing Co.....	Rockingham.....	3,000	.....
*Louis Manufacturing Co.....	Concord.....	2,000	.....
*Marion Manufacturing Co.....	Marion.....	22,528	541
*Monarch Cotton Mills Co.....	Dallas.....	2,000	.....
*Proximity Manufacturing Co.....	Greensboro.....	.....	100
*Barringer Manufacturing Co.....	Rockwell.....	3,000	.....
*Jennings Cotton Mills.....	Lumberton.....	2,000	.....
		65,212	942
South Carolina.			
*Carolina Mills.....	Greenville.....	12,000	250
Tennessee.			
J. Morrow and others.....	Prendergast.....	10,000	.....
*Brookside Mills.....	Knoxville.....	.....	200
Virginia.			
*Riverside & Dan River Mills.....	Danville.....	10,000	.....
*Twine Mill Corporation.....	Roanoke.....	3,000	.....
		13,000	.....
Total for first quarter of 1912.....		87,412	1135
Total for second quarter of 1912.....		135,544	1892
*Established mills increasing.			

nounced) and 40 cottages for operatives. As stated last month, the company has ordered from the Draper Company, Hopedale, Mass., 5184 ring spindles and 126 looms to double its capacity.

Big Increase of Capital.

The Monaghan Mills, Greenville, S. C., has increased capital stock from \$1,050,000 to \$2,500,000. This company was recently mentioned as to vote on a big increase of capital. It has 60,000 spindles and 1460 looms driven by steam and electric power, the output being print cloth, etc.

A \$2,550,000 Capital Increase.

The Victor Manufacturing Co., Greer, S. C., has increased capital stock from \$950,000 to \$3,500,000. It was recently mentioned as to vote on a large increase of capital. Its plant has 59,136 spindles and 1511 looms, driven by steam and electric power, the output being print cloth, etc.

A \$200,000 Mill Company.

The Armstrong Cotton Mills Co., Gastonia, N. C., has been organized with an authorized capital of \$200,000 by C. B. Armstrong, R. B. Babington, A. K. Winget and others. This is the company mentioned last week as planned by Mr. Armstrong, and he has awarded the machinery contracts.

Improvements to Cost \$200,000.

The Riverside Mills, Augusta, Ga., will invest about \$200,000 for improvements.

George R. Stearns of Providence, R. I., president of the company, wires the MANUFACTURERS RECORD: "Plans are too indefinite yet to furnish information; will give particulars later."

A \$100,000 Company.

The Montgomery (Ala.) Cotton Mills has been incorporated with \$100,000 capital stock and the following officers: President, Horace Stringfellow; secretary-treasurer, W. B. Tanner.

Wants Cotton Waste.

The Crozet Ice and Cold Storage Corporation, Crozet, Va., wants to purchase white and colored cotton waste direct from the manufacturers.

Textile Notes.

The Dacotah Mills, Lexington, N. C., will add four spinning frames and eight deliveries of drawing, and has awarded the contract to the Mason Machine Works of Taunton, Mass.

The F. W. Poe Manufacturing Co., Greenville, S. C., has ordered a spinning frame from the Mason Machine Works of Taunton, Mass.

The Norris Cotton Mills Co., Catechee, S. C., has ordered an additional spinning frame from the Mason Machine Works of Taunton, Mass.

The W. A. Handley Manufacturing Co., Roanoke, Ala., will build 100-foot extension and add 65 looms for weaving heavy duck 120 inches wide.

To Develop 61,000 Acres.

Referring to the report mentioned last week that Conrad & Bond will cut timber on Volusia county land, J. B. Conrad, president of the Bond Lumber Co., Glenwood, Fla., writes to the MANUFACTURERS RECORD as follows:

"J. B. Conrad is president of the Bond Lumber Co. at Glenwood, and a part owner of the E. W. Bond Company at Lake Helen. The Glenwood mill is northwest of De Land, on the Atlantic Coast Line Railway, and the Lake Helen mill is east of De Land, on the Florida East Coast Railway, thereby making the mills about 14 miles apart. The tract of timber consists of about 61,000 acres adjoining and interlocked with our other holdings, consisting of over 100,000 acres. This tract of timber will be cut and milled by the two mills, each having a daily capacity of 40,000 to 50,000 feet. We own sufficient equipment, locomotives, cars, iron, etc., to log this tract. It is situated so that it can be easily divided between the two mills and not make a very long haul for either."

Belting Mill Stores and Silk.

Naranlal Maneklal Shah, 69 Appollo street, Fort, Bombay, India, writes to the MANUFACTURERS RECORD:

"Send me copy of your magazine MANUFACTURERS RECORD for my perusal, as I am greatly interested in mill stores of American make. Also kindly supply me with the names of the manufacturers of the best rawhide leather beltings and other leather goods used in mills. Further, I should not omit to mention to you that I wish to export silk waste to America, so I shall very much appreciate your giving me the names of the dealers in this line, too."

Wants Distilling Apparatus.

B. G. Klodt, C. E., San Antonio, Tex., writes to the MANUFACTURERS RECORD as follows:

"Will you kindly see that some wholesale houses or factories dealing in distillery apparatus, full equipment, forward catalogues to my branch office, Puerto Barrios, Guatemala, Central America?"

MECHANICAL

Link-Belt Co.'s Conveyor Systems.

The various applications of the conveyor systems made by the Link-Belt Co. of Chicago are illustrated in the widely different forms of work in which they are

warehouse they are to be stored. By setting the handle on the dial to the proper mark, fingers on the chain-driven trip-shaft come in contact with hinged strikers on the trays. Each tray carries three of these strikers, and on its travel upward the one which has been set by the trip actuates a switch at the proper floor and

delphia. In this case an elevator built by the Link-Belt Co. takes bundles of yarn from the dyehouse, lifts them up through the roof, carries them diagonally across a yard and then discharges them



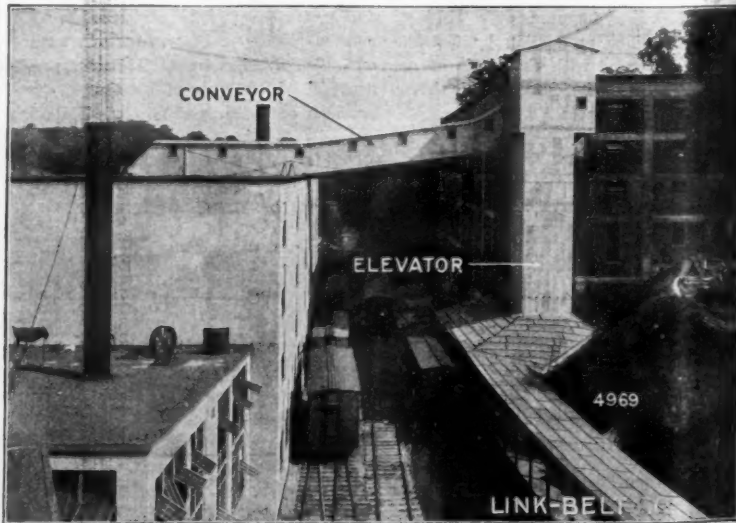
LINK-BELT ELEVATING MACHINERY FOR CLAY AND SAND.

used. The accompanying illustrations show some of these applications. Attention is called to the possibilities of clay and sand mining and shipping which include the use of these conveyors and of which great possibilities may be found in the clay and sand mining of our Southern States. The deposits are scattered all over the South, in many cases close to railroads. One of the accompanying illustrations shows a simple outfit in actual operation in mining clay and sand for the Raritan Ridge Clay Co., Metuchen, N. J. The material from the bank is loaded into side-dump cars and delivered to the foot of the elevator. This elevator lifts material to the screen for sizing, and from the bins under the screen the screened material is run into cars on a railroad siding. In case the sand or clay requires washing, the Link-Belt Co. furnishes designs complete for handling plants on receipt of information regarding the location, kind of material and capacity desired.

Another example of this company's equipment is shown in the illustration in which bales of cotton cloth are being hoisted. These bales are 3x3x6 feet, and weigh 1300 pounds. They are handled at the rate of five in two minutes at the works of Jos. Bancroft, Sons & Co., Wilmington, Del. The conveyor, which runs through the bridge, is of the ordinary slot type, on two strands of roller chain. The elevator has trays with tilting arms which dump on the rising side, the point of dump being controlled from the loading floor by a dial apparatus. As the bales are trucked out of the cars an inspector reads the tags and determines on what floor of the

trailing rollers carried by the tray are deflected by the switch and the tray arms tipped into a dumping position.

This elevator is one of the largest and heaviest yet built for this purpose, and possesses the novel advantage of selective dumping of packages on the upward run.



CONVEYING BALES OF CLOTH IN MILL.

The entire system was designed and installed by the Link-Belt Co. of Philadelphia, Chicago and New York.

Another installation of a Link-Belt system, which affords a very efficient means of handling bundles of yarn, was made a few years ago for the Schofield-Mason Company, carpet manufacturer of Phila-

delphia. In this case an elevator built by the Link-Belt Co. takes bundles of yarn from the dyehouse, lifts them up through the roof, carries them diagonally across a yard and then discharges them

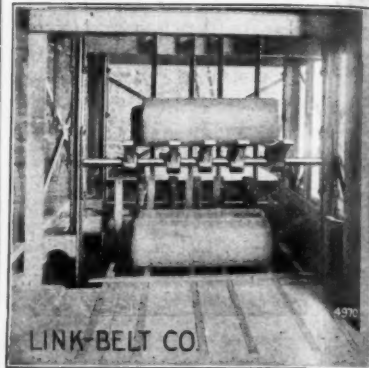
Annis Patent Corrugated Roofing.

An interesting development in metal roofing is shown in the accompanying illustrations of the Annis Patent Safelock V-edge and the corrugated roofing and J.



BALES OF CLOTH ON LINK-BELT CONVEYOR.

through a sixth story window into another of the mill buildings. This machine has two strands of link-beltting with steel arms attached, the arms being fitted with backs which keep the yarn from contact with



BALE-HANDLING LINK-BELT CONVEYOR.

E. A. I. principal fe the lock the illu covers such a underne the lock useful corrup illustr in the l

J. V-edge this lock The

This

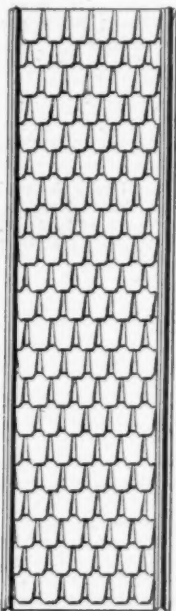
having t design, to give s These

in the c ing & P which c

New The d has been up-to-da

ive lobby tures mu features The Nev cinati or

E. A. patent cluster shingles. The principal feature of the invention consists in the locking joint, which, as seen in one of the illustrations, is simple in application, covers all nail heads thoroughly and is of such a nature that any pressure from underneath by the wind only tends to clasp the lock tighter. Another attractive and useful feature is that it is applicable to corrugated roofing, as shown in the small illustration and the cluster shingles shown in the larger illustration, as well as to the



J. E. A. CLUSTER SHINGLES.

V-edge roofing sheets. It is claimed that this lock absolutely precludes leakage.

The J. E. A. cluster shingle, besides



This cut shows Method of Locking Sheets.



This cut shows Sheets Locked.

having this new lock, is of an entirely new design, which is found to be attractive and to give satisfaction whenever used.

These patent roofings are fully described



in the catalogue of the Chattanooga Roofing & Foundry Co., Chattanooga, Tenn., which company manufactures them.

Newman's Theater Fixtures.

The demand for brass theater fixtures has been built up from the fact that every up-to-date theater must make an attract-



BRASS RAILING FOR THEATERS.

ive lobby display and the many other fixtures must be in keeping with the general features of the interior of the building. The Newman Manufacturing Co. of Cincinnati originates designs for brass fixtures

of every description for theater and similar use. This company is fitting and equipping theaters throughout this country and Canada with its brass fixtures, which include railings, easels, frames, wickets, door guard rails, opera chairs, electric signs, electric fans, etc. The accompanying illustration shows a ticket office brass rail manufactured by the company which reflects the solid and substantial quality of its products.

This company was established in 1882, and now ships its products to many foreign countries. A booklet recently issued describes and illustrates its various products, and a list of theaters which have been furnished with its fixtures is included.

The "Modern" Flat Turret Lathe.

The Modern Machine Tool Co., 4657 Spring Grove avenue, Cincinnati, O., has recently designed and is now building and putting on the market the new flat turret lathe shown in the accompanying illustration. It is made from entirely new designs, massive in its construction and embracing the features of the best forms of modern lathe construction. Careful attention has been given to the arrangement of its various parts, so as to secure ease of manipulation, compactness and simplicity. Each part being designed so as to be commensurate with the strains to which it is subjected, the machine affords the rigidity necessary for a total absence of vibration requisite in the production of accurate work and perfect surfaces.

The "Modern" turret lathe is built with all of its parts extra heavy, so that it is capable of handling a gang of tools of extra sizes and taking extra heavy cuts with ease. At the same time the machine is easy to handle and convenient in every detail for the operator. Each adjustment is easily made and every inducement is offered the operator for successful and rapid work.

The construction and extra size of parts and bearings give increased strength and additional weight in those places where necessary to withstand the enormous duty required at high speeds, and the exceptionally severe strains caused by the use of high-speed tool steel when taking very heavy cuts. This prevents chattering, which is destructive to the cutting tool, and causes the general wearing out of machines, and leaves the product unsatisfactory.

The illustration shows the massiveness of the head and bed and the general construction of the machine. The head contains the cone pulley for driving the machine, the friction back gears and the automatic roller feed and chuck. The cone and gears give the machine 12 spindle speeds in exact geometric progression, ranging from 24 to 465 revolutions per minute. The bed rests on a three-point bearing, is deep and heavy, crescent-shaped and reinforced under the front spindle bearing, which gives great strength and rigidity at the points where most needed and eliminates vibration under the heaviest cuts.

This machine is manufactured on the unit system of construction, eliminating to an appreciable extent individual fitting in the assembling of the lathe and insuring interchangeability of parts. Plain bearings are scraped to master surface plates and straight edges, shaft bearings are ground and fitted with suitable removable bushings, which may be replaced when worn without disturbing the alignment of the shafts, while all sliding surfaces and revolving parts are provided with liberal and efficient means of lubrication readily accessible.

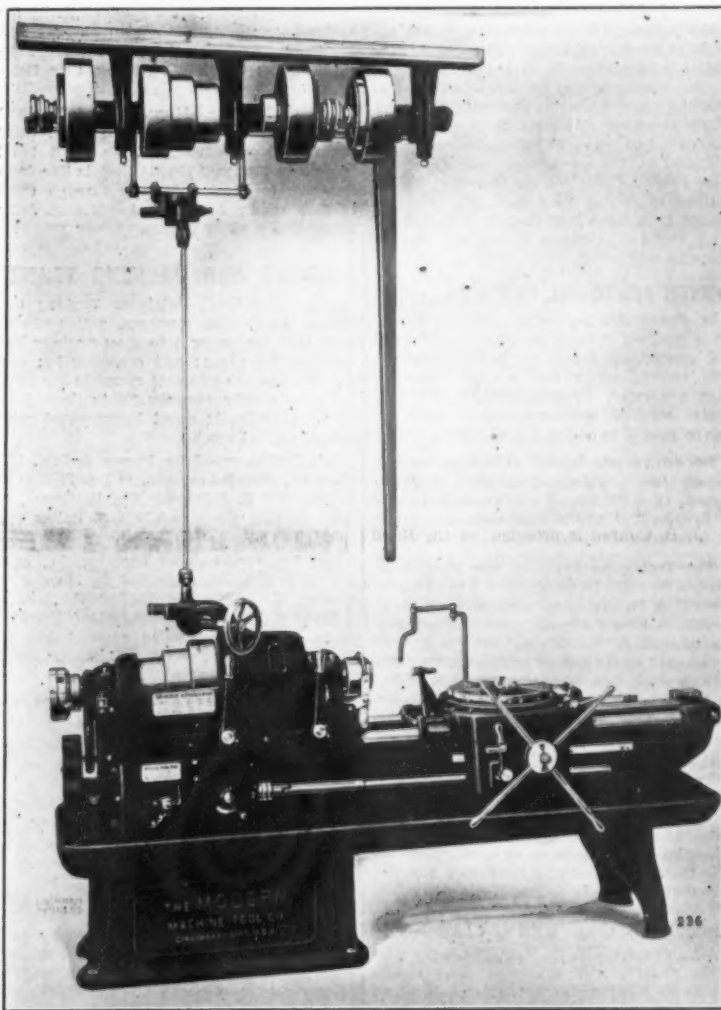
The belt shifter is operated by the hand

wheel in front of the head within easy reach of the operator. The motion from the hand wheel is transmitted to the belt loop through an intermittent rack and pinion. A similar device is suspended from the countershaft, and operates in unison with the device on the head through the knuckle joints and connecting rod, as shown. The belt loops are so timed that a half-turn of the hand wheel to the left shifts the belt from the larger step to the smaller step on the head, while the loop on the upper device holds the belt out of contact with the edges of the cone on the countershaft. The next half-turn of the hand wheel moves the upper loop in line with the corresponding cone on the countershaft.

The automatic chuck is operated by a single movement of a lever in front of the head. It has a strong and unyielding grip, no overhang, no end motion, no

The carriage has a system of 12 stops, so arranged that two may be used for each tool. The backward movement of the carriage automatically turns the turret to each position the instant the tool leaves the work, and is so arranged that it may be turned to any one of the six positions without making any other stops. The adjustable dog for operating the index bar is clamped to the V and governs the position of the saddle at the time when the turret begins to revolve. The carriage is provided with independent adjustable stops which operate automatically for each position of the turret, and may be operated in any desired combination when two or more are needed for any position of the turret.

Bar stock up to 2½ inches in diameter can be fed through the automatic chuck and turned any length up to 26 inches. The swing over the bed is 20 inches; over



"MODERN" FLAT TURRET LATHE AND BELT-SHIFTING DEVICE.

changing of jaws. One set of jaws is adjustable for the full capacity of the machine. The jaws and seat are hardened and ground.

The automatic roller feed is simple in design, has only three moving parts, each of liberal proportion, thereby avoiding frail construction. It is mounted on the spindle just back of the front bearing. It is operated by the same lever and movement that opens the chuck, and operates only when the chuck is open.

The head and bed are cast in one piece to secure the greatest strength and rigidity. The head is very massive, and is friction back-gear, the back gears being located within the head directly under the spindle.

The feed gear box is driven from the spindle, and eight feeds are obtainable instantly. The gears, cone pulley and all moving parts are covered to prevent injury to the operator.

the carriage 16 inches. The spindle has a front bearing 4¾ inches in diameter by 7½ inches long, and rear bearing 3½ inches diameter by 5½ inches long. The turret is 18 inches in diameter, provided with T slots of ample proportions, thus permitting the use of substantial planer head bolts for securing the turning tools to the turret. These can be secured, one back of another, for turning several diameters at one movement of the turret, thus eliminating the stud-bolt. The index is very large in diameter, and the lock bolt is located directly under the working tool, and so close to it that there can be no lost motion between the tool and the locking pin.

The triple friction countershaft has pulleys 16 inches in diameter for 4½-inch belt. The cone has three steps, the largest diameter being 14½ inches, and carries a four-inch double belt. The net weight of the machine is 4500 pounds, and will occupy a floor space of 4x11 feet.

Construction Department

TO OUR READERS!

In order to follow up properly the Construction Department items, please bear in mind the following statements:

EXPLANATORY

The MANUFACTURERS RECORD seeks to verify the items reported in its Construction Department by full investigation. It is often impossible to do this before the item must be printed or else lose its value as news, and in some items it is found advisable to make statements as "it is reported" or "rumored," and not as positive information. If our readers will note these points they will see the necessity of the discrimination. We are always glad to have our attention called to errors that may occur.

HOW TO ADDRESS

The name of one or more incorporators of a newly incorporated enterprise should always be shown on letter addressed to the official headquarters or to the town of the parties sought, as may be shown in the item. Sometimes a communication merely addressed in the corporate or official name of a newly established company or enterprise cannot be delivered by the postmaster. By following these general directions the postoffice will be enabled to deliver your mail promptly, although it is inevitable that some failure by the postal authorities to deliver mail to new concerns will occur.

WRITE PERSONAL LETTERS

In communicating with individuals and firms reported in these columns a letter written specifically about the matter reported will receive better and quicker attention than a circular. In most instances a return postal card or addressed and stamped envelope should be enclosed with letter.

In correspondence relating to information published in this department, it will be of advantage to all concerned if the Manufacturers Record is mentioned.

The Daily Bulletin of the Manufacturers Record is published every business day in order to give the earliest possible news about new industrial, commercial, building, railroad and financial enterprises organized in the South and Southwest. It is invaluable to manufacturers, contractors, engineers and all others who want to get in touch at the earliest moment with new undertakings, or the enlargement of established enterprises. The subscription price is \$25 per year. On all advertising contracts in the Manufacturers Record for three months or longer a subscription to the Daily Bulletin is included for the contract period.

BRIDGES, CULVERTS, VIADUCTS

Ark., Camden.—M. D. Hale, judge for Ouachita county, will construct steel trestle bridge 400 feet long on west side of Ouachita River; let contract July 8. (See "Machinery Wanted.")

Fla., Daytona.—Sholtz & Atkinson are asking bids on construction of previously-noted 4-pile bent, reinforced concrete bridge; 30 feet wide, about 1800 feet long, with draw-center and abutments; engineers, D. D. & C. M. Rogers, Daytona; bids received until 1 P. M. July 11. (See "Machinery Wanted.")

Fla., Miami.—Miami Beach Improvement Co., John Collins, president, Morristown, N. J., awarded contract to George F. Cook Company to build bridge across Bay of Biscayne between Miami and Ocean Beach; 2½ miles long; 18 feet wide; mainly of reinforced concrete construction; all piers of concrete; plank flooring; steel draw in center 65 feet in clear.

Ga., Darien.—Georgia Coast & Piedmont Railroad Co., J. H. Cranberry, chief engineer, will construct two 245-foot drawbridges, one 40-foot half-through plate girder and 13 66-foot girder deck approaches; contract for first three let to Virginia Bridge & Iron Co., Roanoke, Va.; contract for last named will be let July 15. (See "Machinery Wanted.")

Miss., Meridian.—City will issue \$10,000 of bonds to construct bridges and culverts, etc.; J. W. Parker, Mayor. (See "Sewer Construction.")

Miss., Yazoo City.—City contemplates issuing bonds or warrants for construction of

bridge across Yazoo River; T. H. Campbell, Jr., Mayor.

N. C., Asheville.—Buncombe county, E. W. Patton, chairman Board of Commissioners, will construct proposed steel bridge across Big Ivy Creek; 90-foot single span and 20 and 34-foot approaches; bids received until 12 M. August 6; J. C. M. Valentine, County Engineer, Asheville. (See "Machinery Wanted.")

Tenn., Chattanooga.—Southern Railway awarded contract to Ashe Construction Co. of Atlanta, Ga., to construct concrete and steel viaduct over tracks on Vine St.; estimated cost about \$17,000. Robert Looke, City Engineer. (Previously mentioned.)

Tex., Paris.—Lamar county, precinct No. 1, will construct several steel bridges in connection with 40 miles of road, for which contract has been let.

Va., Richmond.—Council Finance Committee recommended appropriation of \$13,500 for bridge over Seaboard Air Line Railway and Richmond, Fredericksburg & Potomac Railroad tracks; Charles E. Bolling, City Engineer.

W. Va., Cassville.—Morgantown & Dunkard Valley Railroad Co., G. B. Hartley, chief engineer, Morgantown, W. Va., will build bridges on proposed 15-mile electric line from Cassville to Blacksburg; one through truss 125-foot span; four 75-foot plate girders; three 40-foot plate girders.

CANNING AND PACKING PLANTS

Ark., Pine Bluff.—Arkansas Packing Co., Simon Whitestone, manager, will probably open bids September 1 to erect packing and refrigerating plant; mill construction; cost \$125,000; install equipment complete for packing plant; daily capacity 100 cattle and 250 hogs. (Previously noted incorporated with \$250,000 capital stock.)

Md., Baltimore.—John Panzer & Bro., 1512 Fleet St., awarded contract to Joseph Schamberger, 2122 E. Baltimore St., Baltimore, to erect packing plant at 507-511 S. Dallas St.; brick; two stories; 45x55 feet.

La., Dalcour.—Dalcour Canning Co., capital stock \$125,000, organized by Ernest J. Coulon, E. L. Chappuis, William H. Heyl, J. Wilfred Galdry and others, all of New Orleans, La.; will establish cannery and ice plant at Dalcour; estimated cost of buildings and machinery, \$60,000.

Okla., Checotah.—R. Y. Audd & Sons will build cannery; ordered equipment.

S. C., Charleston.—"The Orchards" will build fig preserving plants; offices at 46 Broad St. (See "Land Developments.")

Va., Suffolk.—Virginia Fish & Oyster Co., capital stock \$15,000, incorporated; W. N. McAnge, president; Peter Smith, vice-president; J. R. Winstead, secretary.

COAL MINES AND COKE OVENS

Ark., Clarksville.—Spadra-Clarksville Coal Co. increased capital stock from \$1500 to \$3000. Mo., Higbee.—Walton Coal Co., capital stock \$55,000, incorporated by J. M. Walton, John Cosgrove, D. W. Wing and others.

Ky., Middlesboro.—Letcher County Coal Co. organized by M. J. Moss of Pineville, Ky., and others; will develop coal mines about one mile from Pineville.

Va., Pulaski.—Heuser Coal Corporation, capital stock \$50,000, incorporated; C. W. Heuser, president, Pulaski; John Ingles, vice-president, Bristol, Va.; H. Hardaway, secretary-treasurer, St. Paul, Va.

W. Va., Marshall County.—J. L. Hatfield, J. M. Ward, E. D. Tumlin and Morton Van Voorhis, all of Pittsburgh, Pa., purchased from Russell L. Morris of Morgantown, W. Va., 303 acres of coal land in Marshall county for \$35,000.

W. Va., Wellsburg.—Brooke County Coal Co., capital stock \$600,000, incorporated by Frank D. Pavey, Jacob H. Berkowitz, Howard K. Wood and others, 32 Nassau St., New York; Mr. Pavey wires Manufacturers Record: "Acquired 2000 acres formerly belonging to Rex Carbon Coal Co.; property not in operation; no plans for development."

COTTON COMPRESSES AND GINS

Ala., Evergreen.—Alabama Cotton Oil Co., Montgomery, Ala., purchased site on which to build three-stand cotton gin.

Ala., Prattville.—H. S. Usery and associates will build pottery.

Ark., Pangburn.—Arkansas Cotton Oil Co., Little Rock, Ark., will build cotton gin to cost \$6000.

Ark., Russellville.—Modern Gin & Compress Co., Little Rock, Ark., contemplates erecting cotton compress; plans not made. Address T. Phelps of Little Rock.

Ga., Boston.—Holland Gin & Lumber Co. organized with O. P. Walton, president, and J. D. Holland, general manager.

N. C., Lenoir.—Farmers' Cotton Oil Co. organized with \$50,000 capital stock; will install ginning outfit. (See "Cottonseed-oil Mills" and "Machinery Wanted.")

Okla., Valliant.—Valliant Cotton & Ginning Co., capital stock \$6000, incorporated by S. B. McCartney, J. J. Prince and Bernie Herstein.

S. C., Aiken.—Aiken Industrial Co. incorporated with \$30,000 capital stock; will build 6-gin system; J. T. Shuler, temporary president. (See "Cottonseed-Oil Mills.")

Tex., Hamlin.—Pioneer Gin Co., capital stock \$15,000, incorporated by T. E. Hardin, W. W. Johnson and George T. Parkhouse.

Tex., Rosenberg.—Planters' Gin Co., capital stock \$10,000, incorporated by George R. Hallman, J. J. Bramblett and C. H. Gatton.

Tex., San Augustine.—Roland Jones, Nacogdoches, Tex., wires Manufacturers Record: "San Augustine Compress Co. chartered; \$30,000 capital stock; Roland Jones, president; T. B. Sanders, vice-president; A. B. Patterson of Beaumont, Tex., secretary-treasurer. Address Roland Jones. (See "Machinery Wanted.")

Tex., Vidauri.—Vidauri Gin Co., capital stock \$5000, incorporated by James F. Power, James F. Welder and W. S. Crain.

Tex., Whitney.—Industrial Cotton Oil Co. will rebuild cotton gin recently reported burned; cost \$8000.

COTTONSEED-OIL MILLS

Ga., Richland.—Richland Oil Co., J. H. Bryson, manager, organized to operate cottonseed-oil mill. (Recently noted incorporated under "Gas and Oil Developments," Ky., Louisville, with \$60,000 capital stock.)

Miss., Clarksdale.—Planters' Manufacturing Co. (W. P. Holland and others), recently noted (under "Flour, Feed and Meal Mills") incorporated with \$1,000,000 capital stock, states will at first take over Planters' Oil Works; probably add refiner to manufacture cooking oil; also contemplates installing grain elevator and dryer and manufacturing mixed feeds. (See "Machinery Wanted.")

N. C., Lenoir.—Farmers' Cotton Oil Co. organized with \$50,000 capital stock; will install complete equipment, including ginning outfit. Address William Bailey. (See "Machinery Wanted.")

S. C., Aiken.—Aiken Industrial Co. incorporated with \$30,000 capital stock to acquire local plant of Southern Cotton Oil Co. recently reported purchased by J. T. Shuler; will build 6-gin system; machinery ordered; install cottonseed-oil mill with daily capacity 20 tons; temporary organization with J. T. Shuler president.

S. C., Barnwell.—Farmers' Ginning Co., capital stock \$2000, incorporated by Charlie Brown, Harry D. Calhoun, T. B. Cave and others.

Tex., Bellville.—Bellville Cotton Oil Co. will install additional propeller and liner.

Tex., Lockhart.—W. B. Sites Cottonseed Co. contemplates building cottonseed-oil mill.

DRAINAGE AND IRRIGATION

Ark., Earle.—Blackfish Drainage District, Mr. Avery (of Earle), chairman, awarded contract for proposed drainage to J. N. Kissner Construction Co., Coshocton, O.; 5 miles ditch work, about 75,000 cubic yards; C. B. Bailey, engineer, Wynne, Ark.; work begun.

Ky., Owensboro.—Panther Creek Land Co. will drain 2100 acres land; J. H. Hickman, president and manager; K. Anderson, vice-president; Bartley Skinner, secretary-treasurer.

La., New Orleans.—Fidelity Land Co., 705 Gravier St., St. Charles Hotel Bldg., will construct protection levee and drainage canal on Mary Plantation in Plaquemines parish; length 15,800 feet, contain 100,000 cubic yards; receives bids until July 5. (See "Machinery Wanted.")

N. C., Lumberton.—Drainage Commissioners Back Swamp and Jacob Swamp Drainage

districts, G. B. Sellers, chairman, awarded contract to Brett Engineering & Contracting Co. of Wilson, N. C., at about \$113,000, to construct 5.2 miles drainage canals, requiring 1,240,000 cubic yards of excavation. (Call for bids lately noted.)

Tex., Fort Worth.—Mountcastle Land & Irrigation Co., capital stock \$600,000, incorporated by G. W. Mountcastle and R. I. Merrill of Fort Worth, Jos. Rosenbaum, Fred Uhlman, A. Richard Frank and others of Chicago; Mr. Mountcastle wires Manufacturers Record: "Impossible to give information at this time."

Tex., Grand Falls.—Mutual Reservoir Co., capital stock \$100,000, incorporated by M. T. Eudaly, A. J. Adecock, H. W. Jones and J. L. Farley.

Tex., Cotulla.—Cotulla Reservoir & Irrigation Co., Matt Russell, president, plans to irrigate 225,000 acres of land; W. H. Sylvester, engineer in charge, completed preliminary surveys for reservoir sites and recommends following: Dam forming reservoir covering 16,000 acres to irrigate 50,000 acres; dam for 20,000-acre reservoir to irrigate 75,000 acres; dam for 27,000-acre reservoir to irrigate 100,000 acres; each dam about 55 feet high and 1000 to 1500 feet long.

Tex., La Porte.—Drainage District No. 5 will construct drainage system comprising 100 miles of main ditch and laterals; H. M. Harrison, chairman, receives bids until July 15; N. G. Kolb, engineer, South Houston, Tex. (See "Machinery Wanted.")

Tex., San Saba.—Matt Russell of Cotulla, Tex.; Noah Allen of Brownsville, Tex., and associates are planning to construct irrigation system for 50,000 acres of land; engineers in charge, Miller & Conrad.

Tex., San Benito.—El Fresnel Irrigated Land Co., capital stock \$10,000, incorporated by S. A. Robertson, J. C. Miller and Samuel Spears.

Tex., San Elizario.—San Elizario will vote on \$71,000 bond issue to construct irrigation system, consisting of main canal 27 miles long and several laterals; maps and plans prepared by Engineer LaSalle. Address El Paso County Commissioners, El Paso, Tex.

Tex., Markham.—Matagorda County Drainage District No. 2, A. M. Anderson, chairman Board of Commissioners, will receive bids August 12, at courthouse, Bay City, for drainage construction recently described; contract price, \$234,990.13; previously noted as \$0,000 acres. (See "Machinery Wanted.")

ELECTRIC PLANTS

Ala., Athens.—City awarded contract to Allen Engineering Co., Memphis, Tenn., for installing two sets Terry turbo (condensing) 250 K. V. A. generators complete. (Bond issue of \$38,000 recently voted for electric-light plant, sewer extension and waterworks.)

Ala., Lipscomb.—Birmingham Railway, Light & Power Co., Bessemer, Ala., contemplates extending electric-light system to Lipscomb, two miles.

Ark., Tuckerman.—City will construct electric-light and water-works plant; E. V. Holt, chairman of committee for bonds and construction. (See "Machinery Wanted.")

Fla., Hastings.—Electric-light plant will be erected; cost \$10,000. Address construction bids to F. B. Bugbee, Hastings. (See "Machinery Wanted.")

Ga., Americus.—Americus Power Co. (recently noted organized with Frank Lanier, president) will expend \$50,000 to erect 40-horse-power steam power electric plant; erect brick building; mill construction; cost \$4000; J. B. McCrary Company, engineer in charge, Atlanta, Ga.; bids opened for material and machinery July 16. (See "Machinery Wanted.")

Ga., Blackshear.—City voted \$10,000 bond issue to construct electric-light system. Address The Mayor. (Recently mentioned.)

Ga., Decatur.—City contemplates \$15,000 bond issue to construct electric-light plant. Address The Mayor.

Ga., Fort Oglethorpe.—P. O. Chickamauga War Department awarded contract to W. P. Berry of Brooklyn, N. Y., to construct electric-light system to cost \$3500 to \$4000.

Ga., Valdosta.—Valdosta Lighting Co. has approval from Railroad Commission to issue \$365,000 bonds and \$185,000 stock.

Ky., Coolidge (McCreary County).—City is planning to install electric-light plant and

water-works; F. D. Sampson, Circuit Judge. (See "Water-Works and Machinery Wanted.")

Ky., Simpsonville.—A. E. Thomson, principal Lincoln Industrial Institute, advises recently-noted plant has been completed.

Ky., Taylorsville.—City contemplates construction of electric-light system. Address The Mayor.

La., New Orleans.—Sewerage and Water Board, F. S. Shields, secretary, 508 City Hall Annex, awarded contract to McCarthy Company at \$61,308 to erect power-house No. 2; steel and masonry; 100x60 feet. (See "Sewer Construction.")

N. C., Hendersonville.—Laurel Park Street Railway, recently noted interested in erection of \$20,000 power plant, is considering proposition on 150-horse-power steam plant. (See "Machinery Wanted.")

N. C., Smithfield.—City will construct electric-light plant, etc.; bids received until July 31; Gilbert C. White, engineer, Charlotte, N. C.; James A. Wellons, Mayor. (See "Water-works" and "Machinery Wanted.")

Okla., Kingfisher.—City receives bids until July 10 for machinery and materials for constructing electric-light plant and extensions to water-works; Benham Engineering Co., 812 American National Bank Bldg., Oklahoma City, Okla., previously noted as preparing plans. (See "Water-Works." See "Machinery Wanted.")

South Carolina.—South Carolina Light, Power & Railways Co. incorporated with capital stock of \$5,000,000 by William Tusch of Cranford, N. J., and associates; Mr. Tusch advises Manufacturers Record that he is unable to state details now.

Tenn., Memphis.—Memphis Street Railway Co. will build annex to main power plant at Railroad Ave. and 4th St.; four stories; reinforced concrete; fireproof; two reinforced concrete smokestacks 250 feet high; other improvements will include rearrangement of coal bunkers and installation of automatic stokers in connection, 24,000-horse-power battery of boilers and 2000-kilowatt generators; cost of building, \$77,000; Meers & Dayton of Chattanooga, Tenn., have contract to erect addition and General Concrete Construction Co. of St. Louis, Mo., to build stacks.

Tenn., Mountain City.—W. W. Worley, Vaughtsville, Tenn., receives bids for construction of electric-light plant.

Tex., Alice.—Alice Ice & Light Co. incorporated by George T. Rea and others. (See "Ice and Cold-storage Plants.")

Tex., Coleman.—City has purchased material and is installing street-lighting system to cost within \$1500; completed construction of electric-light plant. (Recently noted.)

Tex., Howard, R. F. D. from Waxahachie. Howard Water & Light Co., capital stock \$500, incorporated by J. T. Murphey, W. R. Woods, J. S. Robinson and others.

Tex., Menard.—Menard Public Service Co. incorporated by J. L. Clark and others. (See "Water-works.")

Va., Lynchburg.—State Epileptic Colony will install electric plant to include 125-horse-power engine, 50-kilowatt generator and boiler; contract awarded for engine and generator.

FERTILIZER FACTORIES

S. C., Aiken.—Aiken Industrial Co. incorporated with \$30,000 capital stock; will improve and operate fertilizer plant. (See "Cottonseed-Oil Mills.")

S. C., Greenville.—Carolina Phosphate Co., capital stock \$100,000, incorporated by W. F. Bryson of Woodruff, S. C., and H. L. Todd of Clifton, S. C.

Va., Irvington.—W. J. Payne, Reedville, Va., representing Richmond and other capitalists, is securing options on fish-fertilizer factories with view to combining; will secure options on 10 factories between Delaware Breakwater and below Virginia Capes, including Chesapeake Bay and tributaries, before consolidating; will erect other factories in interior of State; proposes to build shipyards, plant to refine fish oil and another plant for commercial fertilizer from fish scrap.

S. C., Greenville.—Carolina Phosphate Co. incorporated by W. F. Bryson of Woodruff, S. C., and H. L. Todd of Clifton, S. C., to manufacture commercial fertilizer.

FLOUR, FEED AND MEAL MILLS

Ala., Decatur.—Smith Bros. & Co. will erect 125-barrel flour mill.

Ky., Marion.—A. J. Baker and J. H. Mays will erect flour mill; install elevating and power equipment.

Miss., Clarksdale.—Planters' Manufactur-

ing Co. (recently noted incorporated with \$1,000,000 capital stock by W. P. Holland and others) will install various industrial plants, including plant to manufacture mixed feeds. (See "Cottonseed-oil Mills.")

N. C., Durham.—Austin-Heaton Company has let contract for additional machinery for plant; daily capacity 350 barrels flour; no further contracts. (Recently noted to make repairs to machinery.)

Tex., Cleburne.—Anderson Bros. Roller Mills Co., capital stock \$12,000, incorporated by J. A. Anderson, George R. Anderson, Elizabeth Anderson and E. E. Bewley.

FOUNDRY AND MACHINE PLANTS

Fla., Kissimmee.—Gas Engines.—Goshen Motor Works of Goshen, Ind., is reported as contemplating to build gas engine works.

Fla., Jacksonville.—Steel Foundry, etc.—Southern Steel & Iron Works, capital stock \$100,000, incorporated with A. G. Paul of Watertown, president; B. G. Lassiter and P. R. McCrary, vice-president; Lyman E. Wells, secretary-treasurer.

Ga., East Point.—Farm Implements.—Sanders Manufacturing Co., J. M. Sanders, president, 134 Marietta St., Atlanta, Ga., will operate plant to manufacture farm implements; capacity per season, 3000 machines; has building and machinery. (Recently noted at Atlanta, Ga.)

Ga., Rome.—Irrigation Machinery.—Consolidated Overhead Irrigation Co. organized with \$1,200,000 capital stock; J. L. Bass, president; S. P. Coalson, vice-president; B. B. Kendrick, secretary-treasurer; has pur-

chased patents used in constructing overhead irrigation system for farms, orchards, etc.; will establish plant, costing \$50,000, to manufacture all parts, including galvanized-iron pipes, etc. Address Mr. Kendrick.

Ky., Louisville.—Trolley Wheels.—Richardson Paraplane Co. (W. J. Richardson and others), Dayton, O., contemplates, it is reported, establishment of plant to manufacture patented trolley wheels; Brooks Gehegan, local representative.

Ky., Louisville.—Flexible Steam Joints.—Swinging Joint Co. will be incorporated with \$75,000 capital stock to manufacture patented flexible steam joint; purchased plant of Kentucky Gear & Machine Works at 9th and Jefferson Sts. and will equip with additional machinery, including three lathes, radial drill, four drill presses and band saws for pattern-making; Theodore Shoptaw, president; W. F. Decker, secretary-treasurer.

Md., Baltimore.—Canning Machinery, etc.—Edward Renneburg & Sons, 1917-1919 Aliceanna St., will erect two-story brick boiler-house at Boston St. and Whitewood Ave.; contractors, J. J. Walsh & Son, 1533 Maryland Ave., Baltimore; engineer in charge, D. Otto Kubitz, 724 Gorsuch Ave., Baltimore.

Miss., Natchez.—Harrows.—James McClure and others are interested in organization of company with \$50,000 capital stock to manufacture harrow invented by Granville A. Humason.

Mo., St. Louis.—Machine Shop.—Mississippi River Commission, 1307 Liggett Bldg., receives bids until 12 noon, July 17, for structural steel framing for shop building recently noted. (See "Machinery Wanted.")

N. C., Asheville.—Foundry, etc.—Carolina Machinery Co. (not Carolina Machinery & Foundry Co., as recently stated) organized with William F. Decker, president; S. Sternberg, vice-president; F. A. Lindsey, secretary-treasurer; has purchased and will improve plant of American Foundry & Supply Co. (See "Machinery Wanted.")

Okla., Oklahoma City.—Harvesting Machine. H. M. Fletcher of Plainview, Tex., is interested in organization of company to manufacture patented machine designed to automatically cut kafir corn; N. Sherman Machine and Iron Works of Oklahoma City built first model.

S. C., Denmark.—Machinery.—Denmark Machine Works, capital stock \$20,000, incorporated by Lewis Blount, Thomas B. Wilkinson and A. L. Blount.

Tex., Fort Worth.—Tank Cars.—Pierce-Fordyce Oil Association (main office, Dallas, Tex.) awarded contract to Southwestern Mechanical Co. of Fort Worth to erect shops for repairing and rebuilding tank cars; two buildings; 36x160 feet and 30x160 feet, respectively; steel construction.

Va., Lynchburg.—Pipe Foundry.—American Cast Iron Pipe Co., Birmingham, Ala., is reported as proposing to build branch foundry with daily capacity 100 tons pipe and as seeking site of 10 to 20 acres; wires Manufacturers Record: "Plans not sufficiently matured to give information."

Va., Phoebus.—Castings.—Richmond Structural Steel Co. of Richmond, Va., secured

capital stock \$5000, incorporated by C. S. Holden, J. I. Jenkins, C. E. Davison and others.

W. Va., Charleston.—Blue Creek Consolidated Oil Co., capital stock \$50,000, incorporated by M. R. Matthews, C. G. Bergman, J. R. Young and others; main offices, 1205 Alderson-Stephenson Bldg.

ICE AND COLD-STORAGE PLANTS

Fla., Lakeland.—Lakeland Ice & Refrigerating Co. awarded contract to local contractor to erect plant; 75x175 feet; fireproof construction; cost \$10,000; plans by H. D. Mendenhall; cost of machinery (contract let), \$30,000; daily capacity, 75 tons of distilled water ice. (Recently noted.)

La., Dalcour.—Dalcour Canning Co. organized by Ernest J. Coulon of New Orleans, La., and others; will build ice plant. (See "Canning and Packing Plants.")

Md., Baltimore.—Street & Corkran Company, 115 W. Pratt St., has leased building and will install cold-storage plant.

N. C., Thomasville.—J. P. Green of Chester, Pa., contemplates establishing ice plant.

N. C., Wilmington.—Independent Ice Co. will receive bids at office of William E. Springer, chairman building committee, until noon July 15 to erect cold-storage building; four stories; 90x160 feet; fireproof; reinforced concrete; plans by Joseph F. Leitner of Wilmington. (Recently mentioned.)

Tex., Galveston.—Galveston Ice & Cold-Storage Co. awarded contract to Gilsonite Construction Co. of St. Louis, Mo., to build cold-storage plant; three stories; reinforced concrete; steel frame; initial capacity, 250,000 cubic feet, to be increased to 500,000 cubic feet; plans by Widman & Walsh of St. Louis, Mo.; L. Block, engineer, New York, will supervise construction. (Further facts recently mentioned.)

Tex., Alice.—Alice Ice & Light Co., capital stock \$12,000, incorporated by George T. Rea, C. H. McShan and E. J. Stevens.

LAND DEVELOPMENTS

Ala., Birmingham.—Ochatche Land & Development Co., capital stock \$2000, incorporated; R. Miller Ingram, Jr., president; R. Miller Ingram, Sr., vice-president; John E. Ingram, Jr., secretary-treasurer.

Ala., Birmingham.—Nabers Land Co., capital stock \$50,000, incorporated; J. H. McCary, president and treasurer; W. F. Nabers, vice-president; E. B. Nabers, secretary; will develop 235 acres in about 1500 lots; contemplates grading, macadamizing, cement sidewalks, etc., in 1913.

Ga., Savannah.—Georgia Land & Securities Co., capital stock \$200,000, incorporated by W. W. Mackall, Joseph Hull, R. M. Butler and others.

S. C., Charleston.—East Shore Development Co., capital stock \$2000, incorporated by C. B. Hulet and George R. Fishburne.

S. C., Charleston.—Cherokee Place, capital stock \$15,000, incorporated by Walter B. Wilbur, William C. Wilbur and Sarah E. Quinn.

S. C., Charleston.—Berkeley Development Co., capital stock \$10,000, incorporated by Walter B. Wilbur, William C. Wilbur and Sarah E. Quinn.

S. C., Charleston.—"The Orchards" incorporated with \$50,000 capital stock by G. D. Altman of Charleston and C. M. Griffing of Griffing Bros. Company, Jacksonville, Fla.; will cultivate 1500 to 2000 acres near Charleston for fig trees; will plant tracts of five acres for sale, set to 1000 trees; will now set 50,000 trees; will build preserving plants; offices at 46 Broad St.

S. C., Columbia.—Shandon Terrace Co., capital stock \$10,000, incorporated; Harry Cantey, president; George B. Reeves, vice-president; Christie Benet, secretary-treasurer.

Tex., Clarendon.—Bugbee Live Stock & Land Co., capital stock \$300,000, incorporated by T. S. Bugbee, T. E. Bugbee and W. H. Patrick.

Tex., Houston.—Houston Security Corporation organized with \$10,000 capital stock by Minor Stewart, E. H. Sterrett and others; will erect dwellings, etc.

Va., Oldfield.—James River Farms Co., capital stock \$25,000, incorporated; H. B. Williams, president; Robert F. Fits Randolph, secretary.

Va., Sealston.—Rappahannock Valley Farms Corporation, capital stock \$25,000, incorporated with Lee J. Graves president, L. Morrison secretary-treasurer, both of Fredericksburg, Va.

Va., Phoebus.—L. M. Newcomb Land Corporation, L. M. Newcomb, president, will improve water-front property for residence

FOR the benefit of business concerns, engineers, contractors, machinery manufacturers, dealers and others who find it profitable to follow up daily the industrial, commercial, railroad and financial development of the South and Southwest as published in this Construction Department, we issue every business day in the year a Daily Bulletin of the Manufacturers Record.

The construction news as published in the Daily Bulletin is invaluable to all business people who want to keep in daily touch with the organization of business enterprises of all kinds throughout the whole South. Unlimited possibilities for the creation of business, for securing contract work, for the sale of machinery and supplies of all kinds, for bond buyers and others, are to be found through a close following up of the news in the Daily Bulletin.

The Bulletin is an exceptionally desirable advertising medium.

The subscription price is \$25.00 a year. Are you a subscriber to it, or an advertiser in it? If not, you are missing an opportunity for profitable business.

GAS AND OIL DEVELOPMENTS

Ky., Louisville.—Richland Oil Co. (recently noted incorporated with \$50,000 capital stock) will operate cottonseed-oil mill at Richland, Ga. (See "Cottonseed-oil Mills.")

La., Shreveport.—Cross Lake Oil & Gas Co., John W. A. Jeter, secretary, Box 264 (recently noted incorporated), will begin drilling within 60 days; develop 100 acres. (See "Machinery Wanted.")

La., Shreveport.—Fairside Development Co., capital stock \$50,000, incorporated; A. N. Sample, president; T. E. Williams, vice-president-treasurer; C. P. Munday, secretary.

Okla., Gotebo.—Gotebo Oil Operating Co., capital stock \$25,000, incorporated by Calvin M. Rosser of Gotebo, L. M. Brantley of Oklahoma City, Okla.; D. A. Mayer of Elk City, Okla., and F. B. West of Houston, Tex.

Okla., Tulsa.—Tartar Oil Co., capital stock \$10,000, incorporated by Benjamin F. Rice, Thomas D. Lyons and E. F. Gester.

Tex., Childress.—Citizens' Developing Co., capital stock \$25,000, incorporated by W. L. Underwood, W. J. Morris, U. S. Weddington and others.

W. Va., Buckhannon.—Jackson Gas Co.,

and business sites, construct granolithic walks and sewers, etc. (See "Miscellaneous Construction.")

W. Va., Charleston.—K. & M. Land Co., capital stock \$1,000, incorporated by J. D. Woodree, E. J. Stahl and J. A. Taylor.

LUMBER MANUFACTURING

Ark., Cotton Plant.—Eureka Manufacturing & Sales Co., capital stock \$10,000, incorporated; D. H. Echols, president; H. A. Van Dusen, vice-president; W. G. Jones, secretary-treasurer.

Ark., Fordyce.—Virgil L. De Witt, North Manchester, Ind., purchased timber land near Fordyce. (Recently incorrectly noted as bought by "R. D. Wilkins.")

Ark., Pine Bluff.—McGehee-Smith Lumber Co., capital stock \$7500, incorporated; F. O. McGehee, president.

Fla., De Land.—G. B. Conrad, president Bond Lumber Co. of Glenwood, Fla., and part owner of E. W. Bond Company, Lake Helen, Fla., states timber recently noted purchased (by Bond & Conrad) contains 61,000 acres and adjoins other holdings; timber will be cut and milled by the Glenwood and Lake Helen mills, which are sufficiently equipped, logging equipment included.

Fla., Taylor County.—O'Bryan Syndicate, Chicago, Ill., is reported to have purchased (at \$3,400,000) 170,000 acres Taylor county timber land for development, first by cutting timber and later by agriculture; reported purchased from McNair Lumber Co. of Valdosta, Ga.

Ga., Boston.—Holland Gin & Lumber Co. organized with O. P. Walton president and J. D. Holland general manager.

Ga., Savannah.—Barfield Lumber Co. purchased timber land for \$100,000 and will build sawmill for development.

Ga., Vidalia.—G. A. Garbutt and W. O. Donovan of Vidalia and R. M. Garbutt of Lyons, Ga., purchased timber property and will, it is reported, erect sawmill.

Ga., Wayne County.—E. Smith & Co. of Dublin, Ga., purchased 10,000 acres timber land, including turpentine distillery, in Wayne and Appling counties.

La., Chase.—Chickasaw Lumber Co., capital stock \$40,000, incorporated; J. O. Bomer, president; A. F. Smith, secretary-treasurer. Miss., Hattiesburg.—Southern Lumber & Timber Co. increased capital stock from \$50,000 to \$150,000.

Miss., Magee.—W. F. Smith, Jr., Braxton, Miss., contemplates building sawmill about three miles from Magee.

Miss., Sturgis.—Excelsior Lumber Co., capital stock \$25,000, incorporated by C. S. Walker, W. E. Murphy and J. A. McReynolds.

N. C., Lenoir.—Grandin Lumber Co. begun construction of two-band mill and resaw, planing mill and box factory (on Yadkin River and Watauga Railway near Lenoir) for annual capacity 40,000,000 to 50,000,000 feet; has exceeding 60,000 acres land (in foothills of Blue Ridge Mountains) estimated to contain 710,000,000 feet standing timber, 350,000 cords pulp and acid wood, 100,000 cords oak and hemlock tan bark and 3,500,000 railroad ties; land available for agriculture and grazing after timber is cut; also contains minerals, iron predominating; now constructing railway (Watauga Railway Co.) between Lenoir and Wilkesboro, intersecting timber; \$2,000,000 of bonds authorized, of which \$1,000,000 is being issued—\$725,000 to liquidate present debt, \$575,000 to construct sawmill plant and \$300,000 for working capital; president, W. J. Grandin of Tidouite, Pa.; vice-president, J. M. Hastings of Pittsburgh, Pa.; secretary, G. M. Grandin of Tidouite. (Organization and general plans heretofore detailed.)

N. C., Pilot Mountain.—Pilot Mountain Manufacturing Co. is reported as planning to develop timber land, build sawmill, construct railway, etc.

Tenn., Carter County.—Peter-McCain Lumber Co., Bristol, Va., purchased 2000 acres timber in Carter county for \$50,000; will construct railroad to carry timber to mill at Bristol; manufacture timber from entire tract in Bristol; will not develop for two years; estimated to saw out about 20,000,000 feet.

Tenn., Humboldt.—Rooks Bros. (C. W. and C. E. Rooks) purchased 1400 acres of land; reported that 700 to 800 acres are covered

with timber and 400 to 500 acres in cultivation.

Tex., Kirbyville.—S. M. Rosamond will install sawmill.

Tex., Orange.—American Lumber Co., Albuquerque, N. M., will not build sawmill at Orange. (Previous report incorrect.)

Va., Wytheville.—J. W. Myers of Ellis-Myers Lumber Co. of Salem, Va., purchased timber land; will build sawmills.

METAL-WORKING PLANTS

Ga., Americus.—Roofing and Guttering.—L. W. Roose of Canton, O., is reported as contemplating establishing metal roofing and guttering plant.

Md., Baltimore.—Metal Racks.—American Metal Rack Co., capital stock \$50,000, incorporated by Edward J. Colgan, Jr. (200 E. Lexington St.), George Vavrina and Michael S. Grace.

N. C., Halifax.—Shingles.—Reversible Metal Shingle & Manufacturing Co. (recently reported incorporated with \$25,000 capital stock) will open bids in few days to erect building; character of construction, etc., not determined; machinery mainly purchased; daily capacity, 60 to 75 squares metal shingles; B. H. Hale, president; T. O. Vaughn, vice-president; J. L. Weller, secretary; R. H. Merchant, treasurer. (See "Machinery Wanted.")

MINING

Ark., Yellville.—Philadelphia Mining Co., capital stock \$10,000, incorporated by J. L. McCarty, T. C. Angel, Elmer Owens and Sam Williams.

Fla., Tampa.—Rock.—Crystal River Rock Co., capital stock \$20,000, incorporated; V. H. Lanier, president; J. B. Cutler, vice-president-general manager; C. M. Knott, secretary-treasurer.

Ga., Americus.—Southern Mining Co., capital stock \$27,000, incorporated by W. J. Wallis and others.

Mo., Pierce City.—Lead and Zinc.—Bluebell Mining Co., capital stock \$10,000, incorporated by Vera E. Whitten, Frank Chesley, A. E. Bowen and E. G. Whitten.

Mo., Joplin.—Lead and Zinc.—Martha Ball Mining Co., capital stock \$100,000, incorporated by F. S. Higgins, R. E. Niedringhaus and W. J. Von Borries.

Mo., St. Louis.—Lead and Zinc.—Alleghany Mining Co., capital stock \$24,000, incorporated by Sidney F. Andrews and Woodlief Thomas of St. Louis, M. M. Kline and W. H. Marshall of Joplin, Mo.

Okla., Sapulpa.—G. R. Rumney Mining Co., capital stock \$50,000, incorporated by G. R. Rumney and K. C. Kessler of Watson, Okla.; C. R. Hill of Shamrock, Tex., and others.

Va., Stanleyton.—Ochre.—Virginia Ochre Corporation increased capital stock from \$50,000 to \$100,000.

MISCELLANEOUS CONSTRUCTION

Ala., Mobile.—Wharves, etc.—Edw. M. Hewlett, Schenectady, N. Y., vice-president of Alabama Port Land & Improvement Co., wires (from Albany, N. Y.) the Manufacturers Record: "Dredge 23-foot deep channel to lower anchorage; build docks, warehouses and coaling equipment; will give you details at later date." (Company recently reported incorporated with \$1,500,000 capital stock, etc.)

La., Amesville.—Levee.—Jefferson Land Co. will construct levee.

La., Mandeville.—Seawall.—J. P. J. Segasse and others are promoting erection of seawall.

Miss., Yazoo City.—Flood Protection, etc.—City contemplates issuing bonds or warrants to protect city from overflow, caving banks, etc.; T. H. Campbell, Jr., Mayor.

N. C., Waynesville.—Dam.—Southern Assembly, Bishop James Atkins, president, has engaged C. L. Reid to superintend construction of dam across Richland Creek; 925 feet long; 35 feet high; lake will cover 250 acres; plans by W. C. Whitner, associated with J. W. Seaver, Jr. (Previously noted.)

Tenn., Memphis.—Levee Improvements.—George C. Love, commissioner of streets, bridges and sewers, selected George W. Fuller, engineer, of New York, to submit report on North Memphis levee system and to examine plans for improvements prepared by J. H. Weatherford, City Engineer; plans call for construction of levee along Front St. to hold 50 feet of water, and tunnel from bayou through Hulinf Ave. to river, diverting water from southern section; provision is also made for installation of pumps.

Tenn., Memphis.—Mausoleums.—Tennessee Mausoleum Co. increased capital stock from \$50,000 to \$200,000.

Tex., Dallas.—Canal.—Government will dredge section "B," Sabine-Neches Canal; T. H. Jackson, Major, Engineers, receives bids until July 20. (See "Machinery, etc., Wanted.")

Tex., Fort Worth.—Heating.—Directors Masonic Orphans' Home will construct heating system and power plant to cost \$30,000.

Va., Newport News.—Harbor.—City votes July 25 on \$250,000 bond issue to purchase about 119 acres of land surrounding Newport News Creek; to construct small boat harbor and other improvements in connection; harbor to be about 350 feet long and 300 feet wide; Maryus Jones, Mayor. (Recently mentioned.)

Va., Phoebus.—Water Front Improvements.—L. M. Newcomb Land Corporation, capital stock \$15,000, incorporated; purchased two acres of waterfront property for \$30,000; proposes to build concrete seawall from Mill Creek bridge to end of property along Mill Creek and to establish several small industries on site; property along Willard Ave., Mellen and Water Sts. is to be platted into residence and business sites and improved with granolithic walks and sewers; L. M. Newcomb, president-treasurer; Harry G. Parker, secretary, both of Hampton, Va.

W. Va., Borderland.—Coaling Station.—Norfolk & Western Railway, C. S. Churchill, chief engineer, Roanoke, Va., will erect reinforced concrete coaling station to cost \$22,000; this is one of five reinforced concrete coaling stations, each costing \$22,000, to be erected by company on Pocahontas division; other four stations at Vulcan, Farm, Keystone and Morgan; tipples will be built 54 feet above center of tracks; each station will have capacity of 700 tons.

MISCELLANEOUS ENTERPRISES

Ala., Birmingham.—Engineering.—Herndon-Hettrick Engineering Co., capital stock \$10,000, incorporated by Julian Herndon, E. F. Hettrick, M. S. Herndon and M. H. Murphy.

Fla., Tampa.—Coal Bins.—Tampa Coal Co. will enlarge and improve coal plant at Hendry & Knight docks; awarded contract to C. W. Hunt Company, West New Brighton, N. Y., to install plant for discharging vessels; daily capacity, 750 tons coal; enlarged bins will have capacity 10,000 tons.

La., Baton Rouge.—Abattoir.—I. Pujol & Son and Bogan & Sanchez contemplate building central abattoir.

Md., Baltimore.—Lumber.—Thomas Hughes Company, 414 Keyser Bldg., incorporated with \$20,000 capital stock to conduct wholesale and export lumber business, principally hardwoods; W. W. Baldwin, president; E. E. Price, vice-president; W. S. Symington, Jr., secretary; Thomas Hughes, treasurer.

Miss., Clarksdale.—Grain Elevator, etc.—Planters' Manufacturing Co. (W. P. Holland and others) contemplates establishment of grain elevator and drier. (See "Cottonseed Oil Mills" and "Machinery Wanted.")

Miss., Moss Point.—Publishing.—Advertiser Publishing Co., capital stock \$5000, incorporated by J. B. Bounds, J. J. McIntosh and Geo. W. O'Neill.

Mo., Kansas City.—Publishing.—Retail Lumberman Publishing Co., capital stock \$20,000, incorporated by W. A. Anderson, J. H. Foreman, F. N. Daniels and others.

Mo., St. Louis.—Engraving.—Henry A. Grimm purchased site 120x68 feet on which to build engraving plant; two stories; cost \$10,000 to \$12,000.

Mo., St. Louis.—Construction.—Lafayette Construction Co., capital stock \$8000, incorporated by Henry F. Phelan, Paul J. Pasquier and Bernard D. and John A. Reilly.

Mo., St. Louis.—Candy.—Cogswell Candy Co., capital stock \$10,000, incorporated by Frank R. Millhouse, C. M. Vogel, William Fischer and Ruth Cogswell.

N. C., Raleigh.—Laundry.—Sanitary Steam Laundry Co., capital stock \$15,000, incorporated by H. Clarence Howell, James L. Woodard and O. G. Wrenn.

Okla., McAlester.—Grain and Seed.—American Grain & Seed Co., capital stock \$10,000, incorporated by P. C. Tarver, George M. Swift, J. B. Foster and F. M. Foster.

S. C., Greenville.—Hothouse.—Greenville Floral Co. will erect hothouse; concrete walls; glass roof.

Tenn., Memphis.—Printing.—S. Rees Lee will erect building; four stories and basement; reinforced concrete with brick and terra-cotta trimmings; cost reported as \$80,000; site 71x184½ feet; building leased to S. C. Toof & Co., and will be equipped for com-

mercial printing office; G. M. Shaw will prepare plans.

Tex., Aransas Pass.—Oil Depot.—Magnolia Petroleum Co., Galveston, Tex., will establish oil distribution depot on Harbor Island; erect 55,000-gallon storage tank, various buildings and wharves; require 150 carloads steel and other material; estimated cost, \$25,000.

Tex., Mineral Wells.—Crushed Stone.—Mineral Wells Crushed Stone Co., capital stock \$20,000, incorporated by J. H. McCracken, L. N. Brewster, J. T. Moore and others.

Tex., Paris.—Garbage Crematory.—City voted \$10,000 bond issue to build garbage crematory. Address The Mayor.

Tex., San Angelo.—Laundry.—Model Steam Laundry, capital stock \$30,000, incorporated by L. B. Beasley, J. C. Burnside and E. B. Collier.

MISCELLANEOUS FACTORIES

Ala., Birmingham.—Bottling.—Romano Ala-Cola Co., capital stock \$25,000, incorporated; Sam Romano, president; John F. Tyler, vice-president; F. A. Thomasino, secretary.

Ala., Dothan.—Tires.—Alabama Airless Tire Co. incorporated with capital stock of \$6000.

Ala., Leeds.—Powder.—Southern Utahnite Safety Powder Co. is erecting plant; contract let; cost of buildings and machinery \$15,000; daily capacity four tons of powder; R. H. Bowron, president and treasurer; W. N. Jones, secretary. (Bowron & Johnson recently noted as purchasing site for plant; this is same as Alabama Utahnite Co. previously reported incorporated with \$50,000 capital stock.)

Ark., Little Rock.—Canning Supplies, etc.—Dixie Canner Co. will operate plant to manufacture canning outfits and supplies. (See "Machinery Wanted.")

D. C., Washington.—Pulleys.—Winner Pulley Manufacturing Co., Max Janof, president, 613 7th St. N. W. (recently reported incorporated with \$50,000 capital stock), is at present having pulleys manufactured in Pennsylvania.

Fla., Tampa.—Glass.—W. T. Kessinger of Canton, O., contemplates establishing glass plant.

Ky., Frankfort.—Distillery.—E. H. Taylor, Jr., & Sons increased capital stock from \$250,000 to \$1,000,000.

Md., Baltimore.—Shirts.—S. Kirson & Co., 306 W. Baltimore St., leased third floor of warehouse at 9 N. Howard St. and will equip for manufacturing shirts.

Md., Baltimore.—Miller & Graham, Frederick and Water Sts., awarded contract to Cooper-Kubitz Construction Co., 613 American Bldg., Baltimore, to erect paint factory on Frederick St. near Baltimore St.; brick; stone and granite facings; mill construction; five stories; electric lights; elevator; plans by E. W. Dorsey, 538 N. Carrollton Ave., Baltimore. (Recently mentioned.)

Md., Frederick.—Marble Works.—U. A. Lough purchased buildings on S. Market St.; will equip for marble and monument works.

Miss., Canton.—Peanuts.—Southern Peanut Co. is reported as to rebuild peanut factory recently reported burned at loss of \$50,000.

Miss., Clarksdale.—Tire Filler.—Essenay Sales Co., capital stock \$4000, incorporated by J. L. Hartshorn, J. W. Primrose and L. L. Ledbetter.

Mo., Excelsior Springs.—Gas.—Henry I. Lea, consulting gas engineer, People's Gas Bldg., Chicago, Ill., has been retained in connection with reconstruction of gas plant and distribution system; plans now being prepared; bids will soon be asked by Mr. Lea.

Mo., Joplin.—Distillery.—Old Rock Distilling Co., capital stock \$30,000, incorporated by R. F. Robertson, W. J. Cullen and R. Massner.

Mo., Kansas City.—Clothing.—Sentry, Rogers & Co. of Chicago, Ill., leased tract 95½ x 115½ feet at 10th St. and Grand Ave. and will, it is reported, erect eight-story building, with foundation for 12 stories, to be equipped as clothing factory.

Mo., Kansas City.—Brewery.—Old-Fashioned Lager Beer Co., capital stock \$5000, incorporated by F. H. Crump, Jr., Adolph Meyer and Hugo Doebler.

Mo., Kansas City.—Distillery.—Ermis Distilling Co., capital stock \$7500, incorporated by Johanna E. Ermis, F. H. Ermis and E. F. Ermis.

Mo., St. Louis.—Candy.—Busy Bee Candy Co. will erect addition to candy factory at 417 N. 7th St.; cost \$30,000; plans by Albert B. Groves of St. Louis.

Mo., St. Louis.—Raincoats.—Western Raincoat Co., capital stock \$10,000, incorporated by Julius Gates, Jennie Gates and Sylvia Swander.

Mo., St. Louis—Fuel Gas.—Fuel Gas Construction Co., 1003 Fullerton Bldg., organized to construct plants for manufacturing fuel gas; has license from Carrey Process Co. (Recently noted Incorporated with \$10,000 capital stock by John O. Carrey and others.)

Mo., St. Louis—White Lead.—Euston White Lead Co., capital stock \$25,000, incorporated by Hanford Crawford, Philip N. Moore and Arthur Thatcher.

N. C., Charlotte—Overalls, etc.—E. V. Finlayson (president E. V. Finlayson Manufacturing Co.) and associates will organize American Overall Co. with \$2,000 capital stock to manufacture overalls, shirts and automobile suits; will erect four-story building, two floors of which are to be occupied by E. V. Finlayson & Son for manufacturing trousers, and other two floors by American Overall Co.

Okla., Oklahoma City—Oil Stoves and Burners.—Standard Oil Stove & Burner Co., capital stock \$15,000, incorporated by Max K. Wegel, Joseph Beding and C. H. Weigel.

S. C., Charleston—Candy.—Puckhaber Bros. Candy Co., capital stock \$50,000, incorporated by H. F. Puckhaber and H. H. Puckhaber.

Tenn., Chattanooga.—H. H. Ward purchased two-story brick building at 123-125 Market St. and will expend \$5,000 in improvements; will probably lease to manufacturing company.

Tenn., Memphis—Molasses.—John Wade & Sons will build molasses factory to cost \$15,000; Hanker & Cairns of Memphis are architects.

Tex., Dallas—Soda-water Appliances.—The Grosman Company, capital stock \$50,000, incorporated by M. and H. Grosman and Fred C. Ehnman.

Tex., Fort Worth—Overalls.—Miller Bros. & McCreary Manufacturing Co. will rebuild overall factory recently burned; brick construction.

Tex., Houston—Rice Mill.—Southwestern Rice Co. increased capital stock from \$25,000 to \$50,000.

Tex., Longview—Mattresses.—Longview Mattress Co., capital stock \$12,000, incorporated by M. H. Bivins, T. J. Flewellen and E. Hanvassy.

Tex., Uvalde—Wax.—Uvalde Wax Co., capital stock \$20,000, incorporated by Donald Campbell, W. V. Tiner and B. Y. Sharp.

Va., Richmond—Baking Powder.—Southern Manufacturing Co. is having plans prepared by Albert F. Hunt of Richmond for factory building.

Va., Richmond—Moving-picture Slides.—Spiegel Motion Slide Co., capital stock \$200,000, incorporated; president, George B. Hutchings, Richmond; vice-president, J. F. Tilley, Washington, D. C.

Va., Richmond—Distillery.—Crescent Distilling Co., capital stock \$15,000, incorporated; J. W. Sowers, president; J. C. Davis, secretary-treasurer; M. M. Burke, general manager.

W. Va., Charleston—Medical Preparations.—Sherman Hog Greaser Co., capital stock \$30,000, incorporated by C. W. Sherman, C. J. Sherman, M. V. Biggs, George F. Carson and George J. Jochem; main offices, Peoria, Ill.

MOTORS AND GARAGES

D. C., Washington—Garage.—Mrs. Kate W. Babcock, 1 B St. N. W., will erect garage. (See "Dwellings.")

Fla., Jacksonville—Garage.—Bainbridge Richardson will erect two-story brick-veneer garage on Gilmore St. between Riverside Ave. and St. Johns River.

Ga., Atlanta.—Paul Norcross, Candler Bldg., opened bids to erect show-rooms for Locomobile Company of America.

Miss., Corinth—Garage.—Corinth Auto Co. incorporated with \$10,000 capital stock by W. A. Stewart, W. A. Hinton, H. N. Young and others; will establish garage.

S. C., Spartanburg—Automobiles.—Little Automobile Co. incorporated with \$3,000 capital stock by S. C. Little, D. D. Little and Judge Sease.

Tex., Flatonia—Automobiles.—Flatonia Automobile Co. incorporated with \$500 capital stock by C. P. Johnson, D. McKay, F. F. Wotpha and others.

RAILWAY SHOPS, TERMINALS, ROUNDHOUSES, ETC.

Okla., Muskogee.—Special correspondent advises Manufacturers Record that Missouri,

Oklahoma & Gulf Railroad, J. J. Harrison, chief engineer, Muskogee, will expend \$400,000 on proposed shops; steel and brick, with concrete foundation; include machine and repair shops; also boiler shops, transfer table and road engine-house; engine-house probably 230x94 feet, with parallel tracks inside and shutter or ladder tracks at each end; bids are being asked; contracts to be let soon.

Tex., Waco.—W. A. Webb writes from office of assistant to president, Missouri, Kansas & Texas Railway Co. of Texas, Dallas, Tex.: "Spending approximately \$300,000 in establishing new terminals, yards, roundhouses, coaling station, etc.; * * * hope to have facilities completed in September." (Previously noted.)

Va., Crewe.—Norfolk & Western Railway, C. S. Churchill, chief engineer, Roanoke, Va., awarded contract to John P. Pettyjohn & Co., 212 8th St., Lynchburg, Va., to build 25-stall roundhouse; brick walls with frame construction; cost about \$50,000.

Va., Roanoke.—Virginian Railway, H. Fernstrom, chief engineer, Norfolk, Va., let contract to John P. Pettyjohn & Co., 212 8th St., Lynchburg, Va., to erect eight-stall addition to roundhouse; concrete foundation, brick walls and frame construction.

Va., Victoria.—Virginian Railway, H. Fernstrom, chief engineer, Norfolk, Va., awarded contract to John P. Pettyjohn & Co., 212 8th St., Lynchburg, Va., to erect eight-stall addition to roundhouse; concrete foundation, brick walls, frame construction.

W. Va., Princeton.—Virginian Railway, H. Fernstrom, chief engineer, Norfolk, Va., awarded contract to John P. Pettyjohn & Co., 212 8th St., Lynchburg, Va., to erect 10-stall roundhouse previously noted; concrete foundation, brick walls, frame construction; this, with office building at Princeton and roundhouse additions (elsewhere noted) at Roanoke and Victoria, Va., amounting in cost to about \$100,000.

ROAD AND STREET WORK

Ala., Athens.—City will grade and construct 9000 square yards cement sidewalk, 725 square yards vitrified brick crosswalk and 650 square yards crushed limestone screening sidewalk; bids received until July 5; Lifford Cole, City Clerk. (See "Machinery Wanted.")

Ala., Carrollton.—Picksens County Commissioners awarded contract to A. T. Newell of Birmingham, Ala., at \$7351.90 to grade and surface with sand-clay four miles State-aid road; W. S. Keller, State Highway Commissioner, Montgomery, Ala. (Call for bids lately noted.)

Ala., Decatur.—W. A. McCalla, City Engineer, states city will construct sidewalk and street paving to cost about \$30,000, including 10,000 square yards cement walk, 3000 asphalt macadam, 11,000 square yards water-bound macadam and one mile 8 and 10-inch pipe sewers; date of opening bids to be set soon.

Ala., Gadsden.—City awarded contract to C. O. Duncan to pave portions of 3d and Chestnut Sts.

Ala., Moulton.—Lawrence county will construct 11½ miles water-bound macadam road between Hillsboro and Moulton; County Commissioners receive bids until July 10. Address M. S. Bingham, Hillsboro, Ala. (See "Machinery Wanted.")

Ala., Oneonta.—Blount county will grade, drain and surface with chert one mile of State-aid road; bids received until July 11; W. S. Keller, State Highway Engineer, Montgomery, Ala. (See "Machinery Wanted.")

Ala., Opelika.—Lee county will grade and surface with top soil six miles of Opelika and Beulah Rd.; cost \$800; County Commissioners receive bids until July 29; date postponed from July 18, as recently noted; W. S. Keller, State Highway Engineer, Montgomery, Ala. (See "Machinery Wanted.")

Ala., Talladega.—City voted July 8 on \$25,000 bond issue to pave public square, Battle, East, Court and North Sts. Address City Commissioners.

Ark., Little Rock.—Commissioners Tenth Street Improvement District awarded contract to Shelby & Bateman of Little Rock at about \$11,000 to lay Dollarway pavement on 10th St. from Center to High st.; Joseph Saxton, chairman of district; Ford & McCrea, engineers. (Call for bids lately noted.)

Ark., Marianna.—City contemplates additional street paving. Address The Mayor.

D. C., Washington.—District of Columbia will pave various streets and avenues with sheet asphalt and bituminous macadam during 1913; Commissioners receive bids until July 12. (See "Machinery Wanted.")

D. C., Washington.—District of Columbia will lay asphalt block pavements; Commissioners receive bids until July 12. (See "Machinery Wanted.")

Fla., Lakeland.—City awarded contract to Mann Construction Co., 209 S. Kentucky Ave., Lakeland, for following contracts: Dean contract, \$15,000; Clayton, \$5000; Malcolm, \$5000.

Ga., Cedartown.—City will expend \$30,000 to construct 12,000 square yards sheet asphalt paving; H. S. Jaudon Engineering Co., Atlanta, Ga., engineer in charge; contract recently noted awarded to West Construction Co., Chattanooga, Tenn.

Ga., Washington.—City voted \$30,000 bond issue to grade and pave streets and sidewalks. Address The Mayor. (Recently mentioned.)

Ky., Hickman.—City will pave main streets and gravel others; awarded contract to Camden Gravel Co. at about \$14,000.

La., Amesville.—Jefferson Land Co. will construct shell road 6 miles long.

La., New Orleans.—City will construct subsurface drains, culverts, curbs, gutter bottoms and sidewalk pavements on Jackson Ave. from Prytanla to Tchoupitoulas St., and pave with pitch lake asphalt Jackson Ave. from Annunciation to Tchoupitoulas St.; bids received until July 8; Charles R. Kennedy, Comptroller. (See "Machinery Wanted.")

Md., Catonsville.—Eden Paving Co. of Catonsville has contract to improve avenues of Eden Terrace; cost about \$15,000; one mile roads; two miles gutter and sidewalks; Wm. Suco, County Roads Engineer, in charge; V. G. Bloede and others, committee.

Md., Rockville.—Montgomery county will construct about 8 miles of macadam with bituminous binder; date of opening bids and cost not determined; M. D. Knight, road superintendent, Rockville, is in charge; County Commissioners appropriated \$12,000. (George E. Hamilton (Hamilton, Yerkes & Hamilton), Union Trust Bldg., Washington, D. C., and others recently noted interested.)

Md., Towson.—Baltimore county will improve section of Garrison Ave., third district, about 700 feet, and improve section of North Ave., Mt. Washington, third district, with combination curb and gutter and macadam, about 700 feet; County Highway Commission, E. Stanton Bosley, secretary, receives bids until July 18. (See "Machinery Wanted.")

Miss., Meridian.—City contemplates improving 5th St., Magnolia Rd., Maple St. Poplar Springs Rd., Thirty-eighth Ave., etc.; J. W. Parker, Mayor.

Miss., Meridian.—City will construct 20,000 square yards cement sidewalks, 1700 brick street crossings and 10,000 cubic yards grading; bids received until July 19; C. W. O'Leary, City Clerk. (See "Machinery Wanted.")

Miss., Yazoo City.—City contemplates issuing bonds or warrants to improve or pave streets; T. H. Campbell, Jr., Mayor.

N. C., Waynesville.—Cathey Construction Co., Asheville, N. C., will complete four additional miles of road within grounds of Southern Assembly by July 15 and will finish four miles more by end of summer.

N. C., Wentworth.—Jas. T. Smith, County Clerk, states Rockingham county defeated bond issue of \$500,000 for road improvements. (Recently noted.)

Tenn., Athens.—McMinn County Pike Commission, W. P. Wilson, chairman, awarded contract to Denton Bros. to construct two sections of road aggregating 24½ miles; to Bennette, Beene & Maloney for four sections, 3½ miles; to Cresap & Co. for one section of 8 miles, and to Mann Construction Co. for 4½ miles of macadam. This is second series of contracts awarded under \$300,000 appropriation. (Call for bids lately noted.)

Tenn., Lookout Mountain.—Town will petition Hamilton County Commissioners, Chattanooga, Tenn., for election to vote on \$25,000 bond issue for road construction.

Tenn., Memphis.—City Commissioners awarded contract to Memphis Asphalt & Paving Co. at \$5,612.90 to pave Linden Ave. from Main to 4th St. with asphalt, and at \$16,419.53 Bellevue Blvd. from Madison to Lamar Ave. with asphalt. Ennis M. Douglass, City Secretary. (Call for bids lately noted.)

Tex., Fort Worth.—Directors Masonic Orphans' Home will construct concrete walks from main building of home to tracks of Fort Worth—Cleburne Interurban.

Tex., Fort Worth.—City will pave Galveston Ave., from Railroad to Terrell Ave., containing 3300 square yards; material to be rock asphalt, vitrified brick or Bermudez Lake or Trinidad Pitch sheet asphalt; will

also pave West 25th St. from North Main St. to Azle Rd., and along Azle Rd. to city limits, containing 43,900 square yards; material to be bitulithic, bituminous concrete, vitrified brick or granitoid; bids received until July 9; J. H. Maddox, Commissioner Streets and Public Property. (See "Machinery Wanted.")

Tex., Houston.—City awarded contract to Eureka Construction Co. of Tulsa, Okla., to resurface Main St. from Franklin to McKinney Ave. with asphaltum.

Tex., Marquez.—Road District No. 4 of Leon county will construct roads; \$30,000 bond issue voted; County Commissioners, Centerville, Tex., receive bids until July 16. For further information address F. A. Gayle, Marquez. (See "Machinery Wanted.")

Tex., Franklin.—Precinct No. 5 of Robertson county (including Bremond, Nesbitt and Petteway) vote July 23 on \$100,000 bond issue for road construction. Address County Commissioners.

Tex., Paris.—City voted \$100,000 bond issue for street paving; E. H. McCulston, Mayor. (Recently mentioned.)

Tex., Sherman.—Grayson county will construct system of highways, including bridges, culverts, etc., for Road District No. 2; H. B. Wallace, County Auditor, receives bids until July 12. (See "Machinery Wanted.")

Va., Dublin.—Dublin district of Pulaski county votes July 30 on \$100,000 bond issue for road construction. Address County Commissioners, Pulaski, Va. (Recently mentioned.)

Va., Norton.—Town will macadamize streets; \$20,000 bond issue authorized; probably day labor. Address Town Clerk.

Va., Portsmouth.—V. O. Cassell, Jr., City Engineer, may be addressed relative to paving improvements from Causeway to Navy-yard gate. (Recently noted.)

Va., Tazewell.—Tazewell county will macadamize 10.70 miles of road; County Supervisors, D. B. Daniels, chairman, receive bids until July 9. (See "Machinery Wanted.")

W. Va., Benwood.—City awarded contract to A. & O. Holderman to pave Marshall St. from subway to 4th St. and repair McMechen St.

W. Va., Princeton.—Mercer county will grade and construct road in Rock District, leading from top of mountain down Simmons Creek to intersection with Bluestone Rd., distance of 1000 feet; bids received until August 13; W. A. Brown, County Road Engineer. (See "Machinery Wanted.")

W. Va., Parkersburg.—City awarded contract to R. Kennedy at total of \$17,460.31 to pave portions of 7th, Green, 5th, 6th, Quincy, 17th and 11th Sts. with Townsend brick. (Recently mentioned.)

SEWER CONSTRUCTION

Ala., Decatur.—City will construct one mile 8 and 10-inch pipe sewers; W. A. McCalla, City Engineer. (See "Road and Street Work.")

Ala., Tuscaloosa.—Finnell Bros. of Tuscaloosa are lowest bidders at \$4600 to construct sanitary sewers.

Ark., Van Buren.—Commissioners Sewer District No. 2, E. L. Matlock, secretary, awarded contract to Oklahoma Construction Co. of Oklahoma City, Okla., at \$10,559.50 to construct sanitary sewers; 25,000 feet 6, 8, 10 and 12-inch vitrified pipe, with lampholes, flush tanks, manholes, and 300 feet cast-iron pipe; engineer, W. W. Bell of Van Buren. (Call for bids lately noted.)

Ark., Russellville.—Commissioners Sewer District No. 1, H. W. Patrick, secretary, receive bids until July 18 to construct sewer system; E. A. Kingsley, engineer, Markham and Center Sts., Little Rock, Ark. (See "Machinery Wanted.")

D. C., Washington.—District of Columbia will construct Section 3 of Rock Creek main intercepting sewer; Commissioners receive bids until July 8. Address District Commissioners. (See "Machinery Wanted.")

Fla., Orlando.—City is considering construction of sewer system. Address The Mayor.

Fla., De Land.—City is considering construction of sewage plant. Address The Mayor.

Ga., Blackshear.—City voted \$22,000 bond issue to construct sewer system. Address The Mayor. (Recently mentioned.)

Ga., Conyers.—City votes July 20 on issuance of sewer system and water-works bonds. Address The Mayor.

Ky., Somerset.—City votes in November on bond issue to construct sewer system. Address The Mayor.

La., New Orleans.—City receives bids until August 24 (postponed from August 15, as

lately stated) for construction of reinforced concrete siphon under New Basin navigation canal at Broad St., contract 45-D; F. S. Shields, secretary Sewerage and Water Board, 508 City Hall Annex. (See "Machinery Wanted.")

La., New Orleans.—Sewerage and Water Board, F. S. Shields, secretary, 508 City Hall Annex, awarded contract to Hampton Reynolds at \$416,189 to construct Metairie Relief and Broad St. Canal, three miles long, including wood lining of sub-channel, and to The McCarthy Company at \$61,308 to erect power-house No. 2, which is to adjoin boiler-house of purification plant; structure of steel and masonry; 100x60 feet. (Recently mentioned.)

La., Opelousas.—Commissioners first sewerage district, W. J. Sandoz, secretary, awarded contract at about \$53,000 to Southern Asphalt & Construction Co. of Birmingham, Ala., to construct sewer system; about 10 miles 18-inch to 6-foot pipe; Imhoff purification plant; Walter G. Kirkpatrick, engineer, 703 Farley Bldg., Birmingham, Ala. (Call for bids lately noted.)

Miss., Meridian.—City will issue \$10,000 bonds to improve and extend sanitary sewer system and construct bridges and culverts; J. W. Parker, Mayor.

Miss., Senatobia.—City contemplates expenditure of \$20,000 to \$30,000 for sewer system recently noted; now consulting engineers relative to preliminary survey; H. I. Gill, City Clerk.

Mo., Herman.—City will vote July 20 on bond issue for construction of sewer system; Gust. A. Freund, City Clerk.

Mo., Kansas City.—Board of Public Works awarded contract to Parker-Washington Company of St. Louis, Mo., at \$45,047 to construct concrete combination sanitary and storm sewer from Swope Parkway and 50th St. to 49th St. and Kensington Ave.

Mo., Sweet Springs.—City awarded contract to Hyatt & Johnson, Sedalia, Mo., at \$5673 for sewer construction recently mentioned; Leaming & Blaine of Sedalia, engineers in charge.

N. C., Smithfield.—City will construct sewer system, etc.; bids received until July 31; Gilbert C. White, engineer, Charlotte, N. C.; James A. Wellons, Mayor. (See "Water-works" and "Machinery Wanted.")

Okla., Muskogee.—City awarded contract to Wells-Franklin Construction Co. at \$12,300 to construct sanitary sewers in district No. 79.

Okla., Pond City.—City will vote August 6 on \$20,000 bond issue for previously-noted sewer construction; plans and specifications by Benham Engineering Co., 812 American National Bank Bldg., Oklahoma City, Okla.

Tenn., Chattanooga.—Chattanooga Estates Co. awarded contract to Noll Construction Co. of Chattanooga to construct sewers; about 4½ miles to be laid in Highlands and Normal Park.

Tenn., Memphis.—City Commissioners awarded contract to F. D. Harvey & Co. at \$10,488.25 to construct South Memphis sewer, aggregating 7360 linear feet; Ennis M. Douglass, City Secretary. (Call for bids lately noted.)

Tex., Paris.—City voted \$15,000 bond issue to extend sewer system; E. H. McCulston, Mayor. (Recently mentioned.)

Tex., Port Arthur.—City votes July 16 on \$400,000 bond issue for purchase of sewer and water systems and improvements. (See "Water-works.")

Tex., Sweetwater.—City voted \$35,000 bond issue for sewer construction; will use 15,870 feet 6-inch, 9900 feet 8-inch, 6950 feet 10-inch, 7720 feet 12-inch, 750 feet 15-inch and 450 feet 18-inch salt-glazed vitrified pipe; bids opened July 10; L. S. Polk, City Secretary. (See "Machinery Wanted.")

Va., Chase City.—City, W. H. Jeffreys, Jr., Mayor, opens bids July 8 on materials for sewer system recently noted to cost \$20,000; engineer, J. B. McCrary Company, Third National Bank Bldg., Atlanta, Ga. (See "Machinery Wanted.")

TELEPHONE SYSTEMS

Ky., Hopkinsville.—Christian-Todd Telephone Co., capital stock \$1,000,000, incorporated by F. G. Hoge and R. E. Cooper of Hopkinsville; B. B. Petrie of Elkton, Ky.; J. B. Hoge of Cleveland, O.; J. M. B. Hoxie and R. E. Hastings of Atlanta, Ga.

Okla., Hydro.—South Canadian Mutual Telephone Co. incorporated by S. N. Hosey, E. S. Lipscomb and J. B. Norris.

Tex., Navasota.—Yarborough Telephone Co. incorporated by G. C. Stoneham, E. H. Yarborough, J. M. McGinty and R. N. McGinty.

TEXTILE MILLS

Ala., Roanoke.—Cotton Duck.—W. A. Handley Manufacturing Co. will build 100-foot extension and add 65 looms.

Ga., Augusta.—Cotton Goods.—Riverside Mills will expend \$200,000 for improvements, and Geo. R. Stearns of Providence, R. I., president of company, wires Manufacturers Record: "Plans are too indefinite yet to furnish information; will give you full particulars later."

Ga., Douglasville.—Sheeting.—Lois Cotton Mills will add 20 looms; contract awarded; also has erected building addition.

N. C., Gastonia.—Combed Yarns.—Armstrong Cotton Mills Co., authorized capital \$200,000, organized by C. B. Armstrong, R. B. Babington, A. K. Winget and others; has awarded machinery contracts. (Mr. Armstrong mentioned lately as planning to organize company.)

N. C., Hickory.—Cotton Goods.—Ivey Mills Co. does not contemplate building another mill; recent report was erroneous.

N. C., Lexington.—Cotton Cloth.—Dacotah Cotton Mills will add four spinning frames and eight deliveries drawing; contract awarded.

N. C., Shelby.—Cotton Cloth.—Ella Manufacturing Co. awarded contract to R. A. Brown's Sons, Concord, N. C., to erect additional building (recently announced) and 40 operatives' cottages; as recently stated, has ordered 5184 ring spindles and 126 looms to double capacity.

S. C., Catechee.—Sheeting.—Norris Cotton Mills Co. will add spinning frame; contract awarded.

S. C., Greenville.—Cotton Cloth.—F. W. Poe Manufacturing Co. will add spinning frame; contract awarded.

S. C., Greer.—Print Cloth, etc.—Victor Manufacturing Co. increased capital stock from \$950,000 to \$2,500,000. (Recently mentioned as considering increase.)

S. C., Greenville.—Print Cloth.—Monaghan Mills increased capital stock from \$1,050,000 to \$2,500,000. (Recently mentioned as considering increase.)

Tenn., Ridgedale.—Mercerizing Plant.—Ridgedale Processing Co. will organize with capital stock of not less than \$60,000 nor more than \$75,000; probably elect W. Lane Verlenden of Darby, Pa., president; Alfred H. Thatcher of Piedmont, Ala., will be secretary-treasurer; will build plant for mercerizing cotton products; has awarded contract for warp mercerizing machinery to Butterworth Company, Philadelphia, Pa.; Lockwood, Greene & Co., 93 Federal St., Boston, Mass., are the architects-engineers. (Recently noted proposed.)

WATER-POWER DEVELOPMENTS

Ala., Gadsden.—Coosa River Electric Power Co., Roswell H. Cobb, president, has its offices in Woodward Bldg., Birmingham, Ala. (Details of development plan recently outlined.)

Mo., Hollister.—Ozark Water & Power Co. is reported to have acquired Standish water-power property on James River 30 miles northwest of Hollister and as planning to construct third dam and reservoir in 30-mile bend of James River; also planning dam three miles from Hollister to furnish water for eight 3800-kilowatt units in power-house at Powersite; latter will be only power-house, but there will be more than two storage reservoirs; will generate 40,000 horse-power by initial development; after this electricity is marketed plans are for dam and power-house at Moore's Ferry, 25 miles down river and 7 miles southeast of Hollister, where, it is estimated, another 40,000 horse-power is obtainable; engineers are said to have stated company will eventually have succession of reservoirs extending from dam below Hollister, transforming river into series of locks to Galena, thus making navigable water for 140 miles; Holman & Laird, Chemical Bldg., St. Louis, Mo., are engineers in charge for company; Doherty Operating Co., 60 Wall St., New York, is manager. (Ozark corporation heretofore reported as having contracted for 15,000 horse-power development and planning another of 15,000 horse-power in White River, near Branson, Mo.)

S. C., Columbia.—Parr Shoals Power Co. purchased by Edwin W. Robertson and associates; reorganized with Mr. Robertson as president-treasurer; Guy K. Dustin, vice-president-general manager; R. Charlton Wright, secretary; last named advises Manufacturers Record as follows: Will develop Parr Shoals on Broad River 20 miles above Columbia; construct hydro-electric plant generating 25,000 horse-power for transmission by electricity to Columbia and vicinity;

engineers now clearing site and preparing to begin construction; dam 34 feet high; engineering and construction contracts awarded to J. G. White & Co., 43 Exchange Place, New York. (Plan to develop Parr Shoals, previously mentioned, and Columbia Railway, Gas & Electric Co.'s application to dam Broad River recently reported; Mr. Wright is secretary and Mr. Robertson is president-treasurer of Columbia Railway, Gas & Electric Co., and latter is understood to plan utilizing the Parr Shoals electricity for its plants.)

Tenn., Columbia.—J. B. Ashton will install two turbine wheels (at flour and grain mills on Duck River) to develop 400 horse-power to operate plant and probably furnish electricity for lighting.

Tenn., Greenville.—East Tennessee Electric Co. organized by Warren, Tucker & Co. and Wm. T. Pearson of Boston, Mass.; W. V. N. Powelson, J. W. Ross and E. H. Shudro of New York, and Amzi Smith of John-manager; to construct hydro-electric plant, on Nolachucky River, 9 miles from Greenville, with initial development of 6000 to 7500 horse-power for transmitting electricity to Greenville, Johnson City, Morristown, Jonesboro and Erwin; initial plant reported to cost \$500,000; purchased Greenville Electric Light Co. of Greenville, Watauga Electric Co. and Johnson City Traction Co. of Johnson City (price of latter two said to be \$325,000); will ask franchises at Jonesboro, Erwin and Morristown; also construct electric railways from Johnson City to Elizabethton, 10 miles, and to Jonesboro, 8 miles; company recently mentioned as having wired Manufacturers Record: "Propose plant on Nolachucky River nine miles from Greenville; concrete power-house; gravity section dam; power-house designed for four units of 2500 kilowatts each; two units will be installed now; balance as market demands; president and chief engineer, W. V. N. Powelson, 60 Wall St., New York, and Greenville, Tenn."

WATER-WORKS

Ark., Tuckerman.—City will construct water-works and electric-light plant; E. V. Holt, chairman of committee for bonds and construction. (See "Electric Plants" and "Machinery Wanted.")

Ga., Blackshear.—City voted \$23,000 bond issue to construct water-works. Address The Mayor. (Recently mentioned.)

Ga., Conyers.—City votes July 20 on issuance of water-works and sewer system bonds. Address The Mayor.

Ky., Coolidge (McCreary County).—City is planning to install water-works and electric-light plant; water-works includes standpipe and pumping station; F. D. Sampson, Circuit Judge. (See "Machinery Wanted.")

Mo., Joplin.—Jesse F. Osborne, Mayor, recommended to City Council special election to vote on \$20,000 bond issue to construct water-works in Villa Heights.

N. C., Lenoir.—City is having plans prepared for filter plant; bids invited; J. L. Cottrell, superintendent Water Department. (See "Machinery Wanted.")

N. C., Smithfield.—City will construct water-works, electric-light plant and sewer system; bids received until July 31; Gilbert C. White, engineer, Charlotte, N. C.; James A. Wellons, Mayor. (See "Machinery Wanted.")

Okla., Kingfisher.—City Commissioners receive bids until July 10 for machinery and materials for extensions to water-works and constructing electric-light plant; plans previously noted prepared by Benham Engineering Co., 812 American National Bank Bldg., Oklahoma City, Okla.; work by city under supervision of engineer. (See "Machinery Wanted.")

Okla., Kenefick.—City awarded contract to J. E. Davis, Caddo, Okla., on percentage basis, to construct 30,000-gallon tower and tank recently noted. (See "Machinery Wanted.")

Okla., Welch.—City voted \$15,000 bond issue for water-works improvements and \$300 for deep-well drilling. Address The Mayor.

Tex., Howard, R. F. D. from Waxahachie.—Howard Water & Light Co., capital stock \$5000, incorporated by J. T. Murphy, W. R. Woods, J. S. Robinson and others.

Tex., Lampasas.—City, W. H. McGuire, Mayor, will construct elevated standpipe, 200,000 to 250,000-gallon capacity, on 50-foot tower.

Tex., Menard.—Menard Public Service Co., capital stock \$75,000, incorporated by J. L. Clark, J. L. Clark, Jr., and S. C. Rowe.

Tex., Port Arthur.—City votes July 16 on \$400,000 bond issue, of which \$300,000 will be for purchase of water and sewer systems

and remaining \$100,000 for construction of aqueduct from city to wells at Port Neches, distance seven miles, and for extension of water and sewer mains; C. E. Smith, W. C. Tyrell, Sr., and others, committee. (Recently mentioned.)

Va., Chase City.—City receives bids until 8 P. M. July 8 on equipment for water-works construction recently noted; six miles sewer pipe included; J. B. McCrary Company, engineer, Atlanta, Ga. (See "Machinery Wanted.")

Va., Culpeper.—City will construct filtration plant recently noted; bids received July 12; E. E. Johnson, City Attorney. (See "Machinery Wanted.")

Va., Portsmouth.—Finance Committee of City Council will recommend passage of proposed \$600,000 bond issue for installation of municipal water plant under direction of Water Commission.

W. Va., Wheeling.—Board of Control will recommend purchase of 20 K. W. turbine costing \$1250; install at new pumping station.

WOODWORKING PLANTS

Ala., Mobile.—Veneer.—R. H. Benner & Co. will rebuild main building of veneering plant, recently burned.

Ark., Russellville.—Boxes and Crates.—E. S. Dudley is having plans prepared for box and crate factory; mill construction; plans not determined.

Md., Baltimore.—Hardwood Flooring.—Pioneer Hardwood Flooring Co., capital stock \$25,000, incorporated by Felipe A. Broadbent (Canton Ave. and President St.) and others.

Md., Lutherville.—Cooperage.—C. Weisbrod Cooperage Co. (recently noted incorporated with \$5000 capital stock) has taken over plant of C. Weisbrod & Sons; improvements contemplated; Walter Weisbrod, president; E. H. Weisbrod, vice-president; John G. Beck, treasurer; J. Robert Woods, secretary.

N. C., Black Mountain.—Staves.—Dickey & Campbell state they do not contemplate erecting stove mill to cost \$30,000 as recently reported.

N. C., Newbern.—Furniture.—J. S. Miller Furniture Co., capital stock \$50,000, incorporated by J. S. Miller, R. H. Dowdy and C. D. Thomas.

Tex., San Antonio.—Interior Wood Finish. Schultz Bros. Manufacturing Co. increased capital stock from \$15,000 to \$75,000.

Va., Richmond.—Step Ladder.—Extension Step Ladder Specialty Co., capital stock \$50,000, incorporated; John G. Dew president; Harry E. Martin vice-president; Thos. E. O'Keefe, secretary.

BURNED

Ala., McEldeery.—Store and dwelling owned by Hugh L. McEldeery of Talladega, Alabama.

Ala., Mobile.—R. H. Benner & Co.'s main building of veneering plant.

Ark., McCrory.—H. A. Langton's band saw mill.

Fla., Groveland.—E. E. Edge's turpentine distillery; loss about \$3000.

Ga., Farmington.—James Lee's store and other buildings.

Ga., Griffin.—John W. Wolcott's planing-mill and chair factory; estimated loss, \$10,000.

Ga., Rome.—J. J. Conn's store.

Ky., Defoe.—Wesley Hall's store and dwelling; loss \$4200.

La., Lake Charles.—O. H. Castle's residence at Old Town; loss \$4000.

Miss., Monticello.—W. W. Newsom's residence; loss \$5000.

N. C., Arthur, P. O. at Greenville.—C. D. Smith's lumber plant.

S. C., Branchville.—O. W. Smoak's residence, loss \$4000; L. H. Fairley's residence, loss \$4000.

S. C., Chester.—Building owned by Mrs. E. C. Babcock, Chester, and Dr. J. W. Babcock, Columbia, S. C.; loss \$3000.

S. C., Walterboro.—Isam Padgett's saw-mill; leased by W. W. Carter.

Tex., Beaumont.—R. Deutzer Furniture Co.'s mattress factory at Bonham and Hatchford Sts.; loss \$10,000 to \$12,000.

Tex., Colorado.—St. James Hotel, owned by Lasker estate; loss \$20,000.

Tex., Fort Worth.—Miller Bros. & McCreary Manufacturing Co.'s overall factory; loss on building \$16,000, machinery \$12,000 and on fixtures \$2000.

Tex., Houston.—Houston Ice & Brewing Co.'s building at Harrisburg Rd. and Blurr st.; loss several thousand dollars.
Tex., San Antonio.—Acme Sash & Door

Co.'s plant at 2124 W. Commerce St.; loss \$6000.
W. Va., Beckley.—William McTaggart's residence on Kanwha St.; loss \$10,000.

BUILDING NEWS

BUILDINGS PROPOSED

APARTMENT-HOUSES

Ala., Birmingham.—E. M. Tutwiler will erect apartment-house at 21st St. and Park Ave.; six stories; 105x190 feet; cost \$200,000; plans being prepared by J. E. R. Carpenter, Metropolitan Tower, New York. (Previously noted.)

Fla., Lakeland.—S. M. Stephens has plans by W. B. Talley, Jacksonville, Fla., for apartment-house; two stories; four six-room suites, equipped with hot and cold running water, baths and electric lights.

Ga., Savannah.—Maggioni & Co. will erect apartment-house on Oglethorpe Ave.; brick; three or four stories; fireproof construction; tin roof; plans not made; architect not selected.

Ky., Louisville.—C. R. Kelly will erect frame tenement-house at 145 Keats Ave.; cost \$3000.

Mo., Kansas City.—T. D. Dobelstrom will erect brick apartments at 705-7-9 W. 33d St.; cost \$3000.

Mo., St. Louis.—A. Kunehe will erect two-story tenement-house at 2612-14 Eads St.; cost \$3650.

Mo., St. Louis.—L. T. Discher will erect two-story tenement-house at 598 Wells St.; cost \$4000.

Mo., St. Louis.—Charles Muerl will erect two-story tenement-house at 3354 Michigan St.; cost \$3500.

Mo., St. Louis.—Cambridge Apartment Co. will erect addition to tenement-house at 4917-19 McPherson St.; cost \$5000.

Mo., St. Louis.—J. J. Hart will erect two-story tenement-house at 2229-31 Oregon Ave.; cost \$3000.

Mo., St. Louis.—Jesse Morris Realty Co. will erect two three-story tenement-houses at 4225-29 W. Pine Blvd.; cost \$25,000.

Mo., St. Louis.—A. H. Weldt will erect two three-story tenement-houses at 5753-55 McPherson Ave.; cost \$20,000.

Mo., St. Louis.—Richard Weisborn will erect tenement-house at 3830 Ashland Ave.; cost \$5500.

Mo., St. Louis.—Henry F. and F. W. Luepke will erect two apartment buildings on Longfellow Blvd. near Lafayette Ave.; cost \$40,000.

Mo., St. Louis.—Vosey Investment Co. will erect two-story tenement-house at 4045-49 Newstead St.; cost \$7000.

Mo., St. Louis.—J. F. McMahon will erect tenement-house at 5904 McPherson St.; two stories; cost \$5500.

Mo., St. Louis.—Edmund Heintz will erect two-story tenement-house at 2310 Chippewa Ave.; cost \$3400.

Mo., St. Louis.—J. Kastler will erect tenement-house at 4130 Connecticut Ave.; two stories; cost \$4000.

N. C., Wilmington.—Dr. J. W. Powell, K. C. Sidbury and A. O. Schuster will erect apartment-house at 3d and Market Sts.; six stories; fireproof; hot and cold water; gas and electric lights; elevator, etc.

Tex., San Antonio.—George Saur is having plans prepared for store and apartment building. (See "Stores.")

Tex., San Antonio.—Dr. Frank Paschal will erect apartment-house on Maverick St.; two stories.

Va., Norfolk.—Owen-Sleet Company will erect apartment-house on Fairfax Ave.; cost \$15,000.

Va., Norfolk.—W. L. Faier has plans by N. W. Sorey, 209 Carpenter Bldg., Norfolk, for apartment-house; single and frame; two hot-water heating plants; slate roof; cost \$5500.

Va., Richmond.—O. D. Branser will erect two-story frame tenement-house at 111-113 E. 13th St.; cost \$3000.

Va., Richmond.—C. W. Pollard will erect two-story frame tenement-house at 2413 N. 5th St.; cost \$3000.

ASSOCIATION AND FRATERNAL

Ga., Macon.—Benevolent Protective Order of Elks will erect lodge building; six stories.

Mo., Pittsburg.—Labor Temple Association, 513 1/2 N. Broadway, plans to erect building.

Miss., Meridian.—Ancient Free and Accepted Scottish Rite Masons will erect cathedral; cost about \$100,000.

Mo., St. Louis.—St. Louis Gymnastic Society, Leo Osthaus, president, 3536 A Pestalozzy St., will erect lodge building at Grand and McKee Aves.; cost \$40,000.

Tex., San Antonio.—L. J. Hart has plans for store and lodge building. (See "Stores.")

BANK AND OFFICE

Ala., Tallahassee.—People's Savings Bank is ready to receive bids to erect bank and store building; 50x60 feet; ordinary construction; fire walls; metal roof; cost \$4000; J. S. Holloway may be addressed. (Recently noted.)

D. C., Washington.—Home Savings Bank is having plans prepared by Appleton P. Clark, Jr., 816 14th St. N. W., Washington, for building at 629 F St.; one story; 24x30 feet; fireproof; steam heat; electric lighting; slag roof; cost \$20,000.

Fla., Fellsmere.—Fellsmere State Bank has plans by Ladlam & MacDonough, Kissimmee, Fla., for brick bank building; one story; 38x48 feet; tile roof; cost \$6500.

Fla., Miami.—Board of Trade will erect building on Ave. C, adjoining Miami Bank & Trust Bldg.; two stories; reinforced concrete; lower floor for mercantile purposes.

Fla., Palmetto.—J. A. Lamb and others will expend \$10,000 to erect office and store building recently noted. (See "Machinery Wanted.")

Ga., Atlanta.—Trust Company of the South incorporated with \$125,000 capital stock by W. S. Lounsbury, John F. Cone and others; acquired lease from Travelers' Bank & Trust Co. for Hunnicutt property, and will erect office and store building at Walton, Peachtree and Broad Sts.; 18 stories; 40x158 feet; steel frame; safe deposit vaults in basement; cost \$400,000 to \$600,000. (Recently noted.)

Ga., Atlanta.—Chamber of Commerce will open bids about September 1 to remodel Y. M. C. A. building; six stories and basement; semi-fireproof construction; electric lighting; cost \$40,000; plans by A. Ten Eyck Brown, 607 Forsythe Bldg., Atlanta. (Previously noted.)

Ga., Savannah.—Savannah Trust Co., William V. Davis, vice-president, purchased site 130x60 feet at Bull, President, State and Whitaker Sts. and will, it is reported, erect office building; probably 15 stories.

Ky., Frankfort.—United American Insurance Co. will receive bids through Charles E. Dexter, manager, until July 6 to remodel second and third floors of building; certified check for 2 per cent. amount of bid, payable to Mr. Dexter; plans and specifications at office of company and L. L. Oberwarth, architect, Frankfort.

Ky., Paris.—S. H. Kress & Co., 396 Broadway, New York, will erect store and office building. (See "Stores.")

Mo., St. Louis.—Consolidated Investment Co. will alter Century Bldg. (See "Stores.")

Mo., St. Louis.—Beer Bottlers' Union will expend \$5000 to remodel office at 2314 Victor St.

Mo., St. Louis.—George J. Klein, architect, 3637 Windsor Pl., St. Louis, is receiving bids to erect office and laboratory building at Market and Leffingwell Aves. for J. T. Milliken & Co., 316 Clark St.

N. C., Raleigh.—Citizens' National Bank will open bids July 30 to erect bank and office building; 35x80 feet; 11 stories; fireproof construction; steam heat; cost \$150,000; plans by P. Thornton Marye, Atlanta, Ga. (Recently noted.)

Tex., San Antonio.—George Saur has plans by Behles & Boelhaue, San Antonio, for store and office building. (See "Stores.")

Tex., Temple.—Dr. J. S. McCelvey is having plans prepared for office and store building. (See "Stores.")

Va., Boone Mill.—Farmers and Merchants' Bank, organized by T. J. Nelson of Roanoke, Va., and others, will erect bank building.

Va., Richmond.—Frank Walter is having plans prepared by Frank G. Pierson, Rich-

mond, to remodel building now occupied by Army and Navy Club for offices; will erect three additional stories; cost \$75,000.

CHURCHES

Ark., Pine Bluff.—St. Joseph's Catholic Church will erect edifice at 6th and Walnut Sts.; cost \$50,000. Address The Pastor, St. Joseph's Catholic Church.

Ark., Warren.—Presbyterian Church will erect edifice; brick; cost \$35,000. Address The Pastor, Presbyterian Church.

Ga., Union Point.—Baptist Church, Rev. W. S. Walker, pastor, will erect edifice; brick; cost \$6000.

Ky., Covington.—St. Augustine's Church will erect edifice, school and parsonage at Jefferson, 19th and Euclid Sts.; cost \$75,000. Address The Pastor, St. Augustine's Church.

Ky., Louisville.—First Presbyterian Church, Rev. J. S. Lyons, pastor, has plans by Brinton B. Davis, Louisville, for edifice at 1st St. and Ormsby Ave.; cost \$60,000.

La., Natchitoches.—Methodist congregation, Norwood T. Smith, secretary of building committee, will receive bids until July 27 to erect edifice; plans and specifications at office of Wm. Drago, architect, Audubon Bldg., New Orleans, and Mr. Smith, at Natchitoches.

La., Shreveport.—First Methodist Church opened bids to erect edifice; Slaughter & Co., Dallas, Tex., are lowest bidders at about \$82,000.

La., Vernon.—Baptist congregation will erect edifice. Address The Pastor, Baptist Church.

Md., Govans.—First Evangelical Lutheran Church will erect edifice and parsonage at York Rd. and Harwood Ave.; church to have one story and tower; parsonage of similar architecture; cost \$40,000. Address The Pastor, First Evangelical Lutheran Church.

S. C., Charleston.—Proposals received by J. D. Newcomer, architect, Charleston, until noon August 1 to erect Sunday-school building for Bethel Methodist Episcopal Church South; brick, stucco, steel beams; galvanized iron; electric fixtures; gas heat; plans may be had on application to architect on deposit of \$25; certified check for \$500. (Previously noted.)

Tenn., Binghamton.—Church of the Blessed Sacrament, Rev. L. J. Kempheus, pastor, plans to erect edifice; also plans to erect school.

Tenn., Memphis.—Linden Ave. Christian Church is having plans prepared by Jones & Furbinger, Memphis, for edifice; cost \$75,000.

Tex., Fort Worth.—North Side Baptist Church, Rev. W. W. Rivers, pastor, will erect edifice at 15th and Boulevard Sts.; brick; auditorium to seat 800 and Sunday-school to seat 500; choir loft and gallery; will probably install pipe organ; cost \$15,000 to \$20,000; Albert McQuerry, chairman of building committee.

Tex., Smithville.—Methodist Episcopal church South, Rev. R. A. Waltrip, pastor, will expend \$15,000 to erect edifice recently noted; 77x119 feet; fireproof construction. (See "Machinery Wanted.")

W. Va., Wheeling.—Greek Ruthenian Church will erect proposed edifice; stone construction. Address The Pastor, Greek Ruthenian Church.

CITY AND COUNTY

Ala., Bessemer.—Jail.—Jefferson County Board of Revenue, Birmingham, Ala., ordered election for August 12 to vote on \$1,100,000 bond issue to erect courthouse and jail, etc. (See Ala., Birmingham.)

Ala., Birmingham.—Jails, Courthouses and Hospital.—Jefferson County Board of Revenue ordered election for August 12 to vote on \$1,100,000 bond issue; \$1,000,000 to erect courthouse and jails in Birmingham and Bessemer, Ala., and \$100,000 to acquire site and erect hospital addition at Birmingham. (Recently noted.)

Ark., Russellville.—Pope county will expend \$60,000 to erect jail; two stories; fireproof; heating not determined; concrete sidewalks; slate roof; plans by E. H. Ferrell, Little Rock; M. R. Craig, Commissioner. (Recently noted to receive bids until July 1.)

D. C., Washington.—Hospital.—Directors of Emergency Hospital, 15th St. and Ohio Ave. N. W., plan to erect hospital building on New York Ave. near 17th St.; cost about \$200,000.

Fla., Lakeland.—Hospital.—City plans to erect hospital; cost \$15,000. Address The Mayor.

Md., Annapolis.—Jail.—City has plans by Theodore Wells Pietsch, American Bldg.,

Baltimore, Md., for jail; fireproof; brick; granite trimmings; cell construction of steel; cost \$50,000.

Mo., Kansas City.—Bathhouse.—Park Commissioners have plans by Wilder & Wight, 400 First National Bank Bldg., Kansas City, for public bathhouse in the Grove; also will soon award contract to erect public bathhouse at 15th St. and Benton Blvd.; dull enamel terra-cotta; Spanish red tile roof; Italian Renaissance; two pavilions with connecting colonnades; cost \$80,000.

N. C., Asheville.—Jail.—City is having plans prepared by Smith & Carrier, Asheville, for improvements to jail; will rearrange interior, install 16 cages, etc.

Okla., Welch.—City Hall and Jail.—City will vote on \$200 bond issue for city hall and jail. Address The Mayor.

Tex., Dallas.—Zoo.—Zoo Commission is having plans prepared by Brickey & Brickey, Dallas, for first of permanent zoo buildings for Forest Park; octagonal shape; cement bottoms to cages will be three feet above floor of building; trapdoor arrangements; second structure for cats will be fireproof; concrete.

Tex., Dallas.—Fire Station.—City will erect fire station on Young St., east of Browder St. Address The Mayor.

Tex., Houston.—Fire Station.—City opened bids to erect fire station in Westmoreland Addition; W. G. Cook, Houston, is lowest bidder at \$5721. (Recently noted.)

Tex., Houston.—Warehouse and Tank Vault. H. B. Rice, Mayor, will receive bids at office of Dan C. Smith, Jr., City Controller and City Clerk, until July 15 to erect reinforced concrete warehouse and reinforced concrete tank vault according to plans on file at office of City Engineer; certified check for \$300, payable to Mayor Rice.

Tex., Paris.—Fire Department.—City voted \$15,000 bond issue to erect building for Fire Department; Ed H. McCulston, Mayor. (Recently noted.)

Va., Norfolk.—Armory.—Public Improvement committee of City Council approved ordinance appropriating \$27,000 to erect armory on Myers Ave. for Battery B, Light Artillery Blues; I. Branch Johnson, commander.

Va., Norfolk.—Municipal Building.—Bids received by W. T. Johnson, City Clerk, until July 1 to repair and remodel municipal building at Saratoga and Market Sts.; John H. Mitchell, committee on public property.

COURTHOUSES

Ala., Bessemer.—Jefferson County Board of Revenue, Birmingham, Ala., ordered election for August 12 to vote on \$1,100,000 bond issue to erect courthouses and jails at Bessemer and Birmingham, Ala., etc.; is having plans prepared for Bessemer courthouse by Harry B. Wheelock, Birmingham, Ala., for two-story structure; main courtroom to seat 107. (See "City and County," Ala., Birmingham.)

Ala., Birmingham.—Jefferson County Board of Revenue ordered election for August 12 to vote on \$1,100,000 bond issue to erect courthouses and jails at Birmingham and Bessemer, Ala., etc. (See "City and County.")

Ark., Little Rock.—Gordon N. Peny, Pulaski County Commissioner, will receive bids until July 5 to erect annex to courthouse; plans and specifications at office of George R. Mann, 335 Gazette Bldg., Little Rock, on deposit of \$15. (Recently noted.)

Ark., Russellville.—Pope county will expend \$60,000 to erect courthouse; 90x65 feet; fireproof construction; steam heat; slate roof; plans by E. A. Ferrell, 210 1/2 Louisiana St., Little Rock, Ark.; date of opening bids will probably not be determined until November term of court; M. R. Craig, Commissioner. (Recently noted to receive bids until July 1 to raise and rebuild courthouse and jail.)

Miss., Water Valley.—Proposals received until July 15 by Yalobusha County Supervisors at Chancery Clerk's office for rebuilding courthouse according to plans and specifications now on file in Clerk's office; for information apply to P. J. Krouse, architect, Meridian, Miss., or J. G. McGowen, secretary building committee, or R. Spearman, clerk Board of Supervisors. (Previously noted.)

DWELLINGS

Ala., Birmingham.—C. W. Street will erect two two-story frame residences; cost \$3500.

Ala., Birmingham.—F. W. Marks will erect two-story frame residence on Fairview Ave.; cost \$3500.

Ala., Brewton.—O. F. Luttrell will erect residence on Belleville Ave.; two stories.

Ala., Hurstboro.—Upshaw Bros. have plans by E. J. Ostling & Son, Tuscaloosa, Ala., for

dwelling; two stories and basement; 12 rooms; two baths; furnace; hardwood floors; brick mantels; two sleeping porches; cost \$10,000.

Ark., Little Rock.—S. D. Bumpass will erect two-story bungalow at 1419 Summit Ave.; cost \$3500.

D. C., Washington.—Kennedy Bros., 1334 H St. N. W., will erect two dwellings on Connecticut Ave.; Spanish mission style; green Spanish tile roofs; 10 rooms and three baths; cost \$20,000 each.

D. C., Washington.—Rev. William Turner, 1026 Quincy St. N. E., will erect residence at 13th and Quincy Sts.; cost \$9000.

D. C., Washington.—H. R. Howenstein, 1314 F St. N. W., will erect two-story brick residence at 526 M St. N. W.; cost \$3500.

D. C., Washington.—William A. Bows, 1321 F St. N. W., will erect three dwellings at 1525-1529 Pennsylvania Ave. S. E.; cost \$7500.

D. C., Washington.—Mrs. Kate W. Babcock, 1 B St. N. W., will erect brick dwelling and garage at 3401 Massachusetts Ave. N. W.; cost \$24,500.

D. C., Washington.—A. R. Townshend, 2639 Garfield St. N. W., will erect four dwellings at 5324 to 5332 Illinois Ave. N. W.; cost \$10,500.

Fla., Kissimmee.—A. B. Jarrell has plans by Ludlum & McDonough, Kissimmee, for residence; eight rooms.

Fla., Kissimmee.—R. D. Waring has plans by Ludlum & McDonough, Kissimmee, for colonial residence.

Fla., Pensacola.—Malcolm Riera has plans by Alfred & Alfred, Pensacola, for residence; 27x60 feet; frame; gas lighting.

Fla., Tampa.—W. E. Dorchester will erect residence in Morrison Grove; tile and concrete; cost \$14,600.

Fla., Tampa.—Bessie H. Laney will erect two-story residence in Johnson subdivision; cost \$4000.

Ga., Atlanta.—F. & G. Adair will erect two-story frame dwelling at 129-31 Whitehall St.; cost \$6500.

Ga., Atlanta.—Louis Kalb (agent) will erect residence at 399 Peachtree St.; one story; frame; cost \$10,500.

Ga., Atlanta.—Mrs. Alice E. Thomas will erect two-story frame dwelling at 12 Fairview Rd.; cost \$5500.

Ga., Atlanta.—Mrs. O. I. Baker will erect one-story frame dwelling at 78 W. Baker St.; cost \$3750.

Ga., Atlanta.—Mrs. M. F. Huggins will erect dwelling at 342 Ponce de Leon Ave.; two stories; frame; cost \$9500.

Ga., Augusta.—Dr. G. W. Mountain will erect three two-story stucco residences at Walton Way and Monte Sano Ave.; cost \$17,000.

Ga., Augusta.—G. W. Wright will erect two-story frame residence at 349 Walker St.; cost \$3000.

Ga., Cartersville.—B. L. Vaughn will open bids about August 15 to erect dwelling; two stories and basement; 70x100 feet; ordinary construction; cost \$7000; plans by A. Ten Eyck Brown, 607 Forsythe Bldg., Atlanta.

Ga., Griffin.—Mrs. E. C. Smith will open bids about July 20 to erect dwelling; 70x120 feet; two stories and basement; ordinary construction; cost \$20,000; plans by A. Ten Eyck Brown, 607 Forsythe Bldg., Atlanta, Ga.

Ga., Hartwell.—E. E. Satterfield plans to erect dwelling.

Ga., Hartwell.—Jack Craft plans to erect dwelling.

Ga., Hartwell.—Julian B. McCurry will probably have plans prepared by George F. Barber, Knoxville, Tenn., for 10-room residence; wood or concrete; electric lighting; slate or tin shingle roof; J. W. Temple, probable contractor. (Recently noted.)

Ga., Hartwell.—J. W. Williams is planning to erect two-story residence.

Ga., Hartwell.—S. Kendrick is planning to erect residence.

Ga., Hartwell.—W. Z. Yates is planning to erect residence.

Ga., Rome.—E. E. Holder will erect six-room dwelling on S. Broad St.; cost \$3000.

Ga., Savannah.—A. P. Solomon will erect residence at 27th and Broad Sts.

Ky., Covington.—St. Augustine's Church will erect edifice, parsonage and school. (See "Churches.")

Ky., Louisville.—Andrew Lochner will erect frame dwelling at 3015 Speed Ave.; cost \$3000.

Ky., Louisville.—A. C. Schuff has plans by E. Wisniewer for dwelling; 2½ stories; ordinary construction; brick; cost \$6000. (Recently noted.)

Ky., Louisville.—F. Brotzge will erect frame dwelling at 3630 W. Broadway; cost \$3000.

La., New Orleans.—Hubert Huloudestein will erect single frame dwelling; cost \$5000.

La., New Orleans.—John Winam will erect double two-story residence on Banks St.; cost \$3500.

La., New Orleans.—Max Slinger will erect double cottage on Cadiz St.

La., New Orleans.—A. Aronson will erect six double cottages in Belmont Pl.; cost \$2600.

La., New Orleans.—Captain Thomas Capo will erect two 2-story dwellings on Broadway between Hampson and Maple Sts.

La., New Orleans.—Alvina O. Reibentlich will erect single two-story residence; cost \$3000.

Md., Baltimore.—Miss Mary S. Miller is having plans prepared by Walter M. Gleske, 66 Gunther Bldg., Baltimore, for bungalow at Eden Terrace, Forest Park; frame of clapboard construction; shingle roof; 42x40 feet; hardwood interior finish; cost \$7500.

Md., Baltimore.—Walter M. Gleske, 66 Gunther Bldg., is preparing plans for cottage at Edmondson Ave. and Dyer Drive; two and one-half stories; slate roof; brick foundation; 28x33 feet; cost \$6000.

Md., Baltimore.—G. C. Goldman, Woodbourne Ave. near Ready Ave., will erect six dwellings on Old York Rd. near Gorsuch Ave.; two stories; brick; 15x45 feet; hot-air heat; cost \$10,000.

Md., Baltimore.—Clara Abrahams has plans by Callis & Callis, 2000 St. Paul St., Baltimore, for five two-story brick dwellings on S. 3d Ave. near Park Heights Ave.; 14x52 feet; ordinary construction; steam heat; gas and electric lighting; tin roof; cost \$10,000; construction under owner's supervision.

Md., Govans.—First Evangelical Lutheran Church will erect church and parsonage. Address The Pastor, First Evangelical Lutheran Church. (See "Churches.")

Mo., Kansas City.—Phillips Building Co. will erect two frame dwellings on Penn St.; cost \$4250.

Mo., Kansas City.—A. C. Warren will erect two stucco dwellings at 3226 Jackson St. and 5730 Pasco St.; cost \$6300.

Mo., Kansas City.—E. F. Davis will erect two frame dwellings at 3017 and 3035 Askew St.; cost \$2500 each.

Mo., Kansas City.—W. C. Fitchett will erect frame dwelling at 4405 Washington St. and stucco dwelling at 4409 Washington Ave.; cost \$1800 each.

Mo., Kansas City.—C. O. Battles will erect stone-veneer dwelling at 3525 Agnes St.; cost \$4000.

Mo., Kansas City.—Lee Smith Company will erect three stucco dwellings at 3246, 3250 and 3254 Warwick St.; cost \$5000 each.

Mo., Kansas City.—R. H. Pratt will erect stone-veneer dwelling at 5005 Walnut St.; cost \$3000.

Mo., St. Louis.—William F. Farley will erect residence in Parkview; three stories; hot-water heat; electric lighting; green tile roof; cost \$7000; plans by William P. McMahon, Walnwright Bldg., St. Louis.

Mo., St. Louis.—Adolph Meyer will erect two-story dwelling at 5103 Westminster St.; cost \$7000.

Mo., St. Louis.—P. Garavaglia will erect two two-story dwellings at 5194-5196 Pattison Ave.; cost \$1800 each.

Mo., St. Louis.—O. B. Hozan will erect two one-story dwellings at 2417-21 Emerson St.; cost \$4000.

Mo., St. Louis.—E. Z. Leibold will erect addition to dwelling at 4902 Murdock St.; cost \$5520.

Mo., St. Louis.—F. J. Ebling will erect dwelling at 3525 Hartford Ave.; two stories; cost \$5800.

Mo., St. Louis.—William J. Blen will erect dwelling at 2027 De Tonty St.; two stories; cost \$3500.

Mo., St. Louis.—J. B. Munroe will erect dwelling at 4011 Flora St.; three stories; cost \$6000.

Mo., St. Louis.—J. Kupperle will erect two-story dwelling at 3626 Iowa Ave.; cost \$3800.

Mo., St. Louis.—Jesse Morris Real Estate Co. will erect two dwellings at 3158-60 Portia St.; two stories; cost \$6400.

Mo., St. Louis.—J. H. Belz, 3217 Longfellow Blvd., has plans by Henry Boening for dwellings; 35x55 feet; ordinary construction; gas lighting; cost \$6500. (Recently noted under "Apartments.")

N. C., Statesville.—Methodist Church has plans by W. L. White, Hickory, N. C., for

parsonage; two stories and basement; brick; cost \$4000.

S. C., Columbia.—Shandon Terrace Co. incorporated with \$10,000 capital stock; Harry Caney, president; Christie Benet, secretary-treasurer; will erect number of dwellings at Divine and Harden Sts.

Tenn., Memphis.—Abe Goodman is having plans prepared for colonial residence; cost \$35,000 to \$40,000.

Tenn., Memphis.—Julius Goodman will erect residence.

Tenn., Memphis.—Thomas James will erect residence at 105 Evergreen Pl.; cost \$3800.

Tenn., Nashville.—H. B. Alexander has plans by J. A. Williams, Nashville, for residence; 36x38 feet; brick; heating not decided; cost \$5000 to \$6000; separate contracts. (Recently noted.)

Tenn., Trevevant.—Mayor R. T. Argo will erect residence on W. Main St.; also plans to erect another residence.

Tex., Cuero.—Mrs. H. Curila will erect residence at Terrell St. and Broadway; cost \$6000.

Tex., Houston.—George P. Cook will erect 10-room residence on Avondale Ave.; cost \$5000.

Va., Berkeley, Station Norfolk.—Watkins Bros. will erect six double dwellings.

Va., Richmond.—Davis Bros. will erect brick dwelling on Floyd Ave.; cost \$7000.

Va., Roanoke.—G. W. Crumpecker will erect two-story frame dwelling in Lewis Addition; cost \$3000.

Va., Salem.—Gordon Wells will erect residence.

Va., Somerset.—Walter George Newman, Mount Athon, Somerset, Va., will erect residence to replace burned structure; three stories, basement and attic; nearly 50 rooms; tower at each corner finished with spires and castellations; North Carolina granite; roof covered with gray asbestos slate; copper finials, crestings and gutters; dome skylight; French chateau style; 82 feet 7 inches by 99 feet 8 inches; kitchen, laundry, servants' rooms and bath, heating plant, Turkish baths, etc., in basement; main floor rooms grouped about central hall or court, which will extend to roof and be lighted by dome skylight; galleries supported by columns; marble floors and walls in entrance and main halls and stairways; double-sash windows; revolving doors at entrances; cost about \$100,000.

GOVERNMENT AND STATE

Mo., Jefferson City.—Capitol.—State Capitol Commission Board opens competitive plans (in two stages) for capital building; first stage drawings received August 10 and open to all architects; 10 architects will then be selected and second stage held September 10; honorarium of \$1000 will be paid each of 10 architects; competition on conditions set forth in program prepared by L. Baylor Pendleton, advisory architect, 930 Central National Bank Bldg., St. Louis, Mo.; cost of building, \$3,500,000. (Recently noted.)

Mo., Marshall.—Postoffice.—Treasury Department, Office of Supervising Architect James Knox Taylor, Washington, D. C. Sealed proposals received in this office until 3 P. M. August 5 for construction complete (including plumbing, gas piping, heating apparatus, electric conduits and wiring, interior lighting fixtures and approaches) of United States postoffice at Marshall; one story and basement; ground area about 4900 square feet; first floor fireproof; stone facing; tin roof; drawings and specifications obtainable from custodian of site at Marshall or at this office at discretion of supervising architect.

Okla., Kingfisher.—Postoffice.—Treasury Department, James Knox Taylor, supervising architect, Washington, D. C., opened bids to erect postoffice; N. H. Shields, Danville, Ill., is lowest bidder for limestone construction at \$42,346, and Dieter & Wenzel Construction Co. for sandstone construction at \$42,571. (Recently noted.)

S. C., Union.—Postoffice.—Treasury Department, James Knox Taylor, supervising architect, Washington, D. C., opened bids to erect postoffice building; Wise Granite Co., Richmond, Va., is lowest bidder for limestone construction at \$48,600, and James de Vault, Canton, O., is lowest bidder for sandstone construction at \$49,500. (Previously noted.)

HOTELS

Ala., Brewton.—W. H. Strong Brick Co. contemplates erecting \$25,000 hotel at Keego, near Brewton; also construct boulevard from hotel to Herrington Springs.

Ga., Savannah.—Collins Hotel Co. will erect hotel at Abercorn and Congress Sts.;

5 stories; brick; stucco finish; 40 guest rooms, 16 with private baths; general bath, plunge and shower on each floor; running hot and cold water; sun parlor; passenger elevator; heating and refrigerating plant in basement; cost \$60,000.

Ga., Waycross.—First National Bank accepted plans for addition to Phoenix Hotel; about 100 rooms; telephones; private baths; steam heat; electric elevators; cost \$40,000. (Recently noted.)

Ky., LaGrange.—Royal Magnesium Springs Hotel Co. incorporated with \$100,000 capital stock; will erect hotel.

N. C., Waynesville.—Southern Assembly, Bishop James Atkins, president, has plans by Smith & Carrier, Asheville, N. C., to erect first hotel; 115 bedrooms; 50 baths. (Previously noted to erect three hotels.)

Tex., Bay City.—Company is being organized to erect hotel; plans being prepared by Henry T. Phelps, San Antonio, Tex.; four stories; cost \$50,000.

Tex., Natalia (not a postoffice).—Medina Valley Irrigation Co., 4th floor Swearingen & McCraw Bldg., San Antonio, Tex., will receive bids to erect hotel.

MISCELLANEOUS

Ala., Birmingham.—Clubhouse.—University Club, William J. Conniff, secretary, will expend \$20,000 to erect four-story addition to and improve clubhouse at 930 S. 20th St.; will provide swimming pool, shower baths, bowling alleys, roof garden, etc.

D. C., Washington.—Photographic Studio. C. O. and W. H. Towles, 1167 F St. N. W., purchased residence at 1530 Connecticut Ave. N. W. and will expend \$4000 to remodel for photograph studio.

Fla., Brownsville.—Hall, Postoffice, etc.—Saxon & Co. will erect store, postoffice and hall building. (See "Stores.")

Fla., Lemon City.—Clubhouse.—Miami Tarp Club, organized by E. B. Douglas, Joseph H. Wolfe of Miami, Fla., and others; will erect clubhouse; 56x120 feet; two stories; grillroom, billiard-room, bowling alleys, etc.; accommodations for 50 people.

Ga., Savannah.—Armory.—Chatham Artillery, R. J. Davant, captain, will, it is reported, erect armory.

Ky., Paducah.—Hospital.—Illinois Central Railroad, A. S. Baldwin, chief engineer, Chicago, Ill., will improve railroad hospital; will erect second-story addition to west wing and washrooms, affording about 10 additional rooms, etc.; cost \$10,000.

La., New Orleans.—Clubhouse.—Audubon Golf Club, C. B. Fox, president, will build clubhouse to replace burned structure; loss \$10,000. (Recently reported burned.)

La., New Orleans.—Home.—German Protestant Bethany Home will erect single cottage on Claiborne Ave.; cost \$3000.

Mo., St. Louis.—Restaurant.—Bids received until July 1 by R. H. Thompson, 186 N. State St., Chicago, Ill., through Kilpstein & Raymann, architects, 1591 Chemical Bldg., St. Louis, to erect restaurant at 620 Washington Ave.; cost \$50,000. (Previously noted.)

Mo., St. Louis.—Home.—St. Louis Rescue Mission will receive bids until July 15 to erect mission-house; cost \$80,000; plans by J. M. Dunham, 727 Odd Fellows Bldg., St. Louis, call for four-story and basement structure; brick and concrete; auditorium to seat 2000. (Recently noted.)

N. C., Dunn.—Stable.—T. L. Gerald will erect brick stable.

N. C., Waynesville.—Auditorium.—Southern Assembly, Bishop James Atkins, president, awarded contract to Burnham & Ives, Bloomington, Ill., for steel work on auditorium; 150 feet in diameter; accommodate 4000 people. (Previously noted.)

Okla., Oklahoma City.—Clubhouse.—Germania Club is erecting clubhouse on W. Grand Ave.; 40x80 feet; cost \$10,000; will also erect another building of equal dimensions; total cost about \$25,000.

Tex., Galveston.—Seamen's Bethel.—Seamen's Friend Society is having plans prepared by Stowe & Stowe, Galveston, for Seamen's Bethel; three stories; semi-fireproof; brick; 42.10x120 feet; cost \$30,000.

RAILWAY STATIONS

Ala., New Decatur.—Louisville & Nashville Railroad Co., W. H. Courtney, chief engineer, Louisville, Ky., will erect depot; construction by company's force. (Recently noted to cost \$10,000.)

Ala., Pratt City.—St. Louis & San Francisco Railroad, M. C. Byers, chief engineer, Springfield, Mo., will erect passenger and freight depots to replace burned structures.

Ark., Hope.—St. Louis, Iron Mountain &

Southern Railway Co., E. F. Mitchell, chief engineer, St. Louis, Mo., will erect freight depot.

Fla., Miami.—Florida East Coast Railway, J. R. Parrott, president, St. Augustine, Fla., will erect passenger station; 65x200 feet; frame; slate roof; main portion two stories; two waiting-rooms; three entrances. (Previously noted.)

SCHOOLS

Ala., Jacksonville.—State Normal School trustees are having plans prepared by Frank Lockwood, Montgomery, Ala., for improvements to Normal School.

Ala., Summerville.—Baldwin County Board of Education has plans by P. G. Dahl for proposed school.

Ala., Tuscaloosa.—School Board, J. I. Harrison, clerk, will open bids about August 1 to erect grammar school; four rooms and basement; brick; cost \$10,000; plans by W. E. Bennis, Bessemer, Ala.; will expend \$20,000 to remodel Jamison & Stafford school buildings. (Bond issue of \$35,000 recently noted.)

Ga., Quitman.—City is having plans prepared by Bishop & Greer, Valdosta, Ga., for school building; 12 classrooms and auditorium; pressed brick; limestone trimmings; tile roof; basement for manual training, domestic science, etc.; heating not determined; cost \$40,000. (Bond issue previously noted.)

Ky., Covington.—St. Augustine's Church will erect school, etc. (See "Churches.")

Ky., Harlan.—City voted \$10,000 bond issue to erect school. Address The Mayor. (Previously noted.)

La., New Orleans.—City acquired site in Fifth ward for school; Charles R. Kennedy, City Comptroller.

La., New Orleans.—Holy Cross College will erect two wings to main building, to contain two classrooms and two dormitory halls to accommodate 200 students.

Md., Hagerstown.—Blue Ridge College, C. N. Frushour, secretary of trustees, Union Bridge, Md., will remove college from Union Bridge to Hagerstown, erect buildings, etc. (Recently noted as to remove to Myersville, Md.)

Miss., Hernando.—City will erect school; cost \$9,000. Address The Mayor. (Previously noted.)

Miss., Kossuth.—W. A. McCord, Alcorn county superintendent of education, Corinth, Miss., will receive bids until July 6 to erect dormitory and academic buildings, exclusive of heating and plumbing; frame construction; certified check for \$250, payable to J. R. Cates, chairman of trustees; plans and specifications at office of M. M. Alsop, architect, Houston, Miss.

Miss., Pheba.—City will open bids not later than July 15 to erect dormitory for Clay County Agricultural High School; L-shaped; 49x72 feet and 39x40 feet; two stories; frame; cost \$4,000; H. L. Miller, Mayor. (City recently noted as contemplating issuance of \$800 of bonds to erect building.)

Mo., Carthage.—School Board, Allen M. Reynolds, secretary, will erect two-room school building; mill construction; cost within \$3500. (Bond issue of \$10,000 recently noted.)

Mo., Kansas City.—German Lutheran School Trustees will erect school at 1527 Cherry St.; cost \$4,000.

Mo., Liberty.—Bids received until about July 1 by J. H. Felt & Co., architects, New Shubert Bldg., Kansas City, Mo., to erect science building at William Jewell College; J. F. Greene, president.

N. C., Dunn.—City will improve graded school; install heating plant, fire-escapes, etc. Address The Mayor.

N. C., Greensboro.—City Commissioners are having plans prepared by Brewer & Geary, Greensboro, for two ward schools; brick; two stories; four classrooms, with halls and offices; cost \$6,000. (Recently noted.)

N. C., North Wilkesboro.—Trustees of Graded Schools, H. O. Absher, secretary, will receive bids to erect school building; cost \$10,000; plans and specifications ready in few days. (Previously noted.)

N. C., Waynesville.—Board of Aldermen accepted plans by J. M. McMichael, Charlotte, N. C., for graded school building at Haywood St. and Boyd Ave.; eight classrooms, superintendent's office, library and auditorium to seat 1000; cost \$20,000.

Okl., Big Heart.—City voted \$10,000 bond issue to erect brick school. Address The Mayor.

Okl., Lawton.—Chamber of Commerce may be addressed relative to erection of dormitory for Cameron State School of Agriculture. (Recently noted.)

Okl., Tulsa.—Kendall College will erect dormitory; reinforced concrete; accommodations for 40 students; living-room 18x42 feet; hardwood floors throughout; hot and cold water in each room; sun parlor and pergola.

S. C., Pomaria.—Town voted \$4000 bond issue to erect school. Address Town Clerk.

Tenn., Binghamton.—Church of the Blessed Sacrament, Rev. L. J. Kempheus, pastor, plans to erect school. (See "Churches.")

Tenn., Jersey (not a postoffice).—Hamilton County Board of Education, J. B. Brown, Superintendent of Public Schools, Chattanooga, Tenn., will receive bids until July 8 to erect brick school; certified check for \$150, payable to J. A. Hargraves, chairman of board; plans and specifications at office of R. H. Hunt, architect, 1225 James Bldg., Chattanooga.

Tenn., Shelbyville.—Trustees African Methodist Episcopal Church will open bids July 15 to erect dormitory for girls for Turner Normal College recently noted; 58x122 feet; three stories; ordinary construction; cost \$18,000; cost of heating plant, \$2800; electric lighting; metal roofing; plans by Moses McKissack, Nashville, Tenn.; contract for foundation work awarded; Rev. J. A. Jones in charge. (See "Machinery Wanted.")

Tex., Austin.—Board of Trustees of Austin City Public Schools, H. M. Metz, president, will receive bids until July 8 to erect additional wings and remodel high school; certified check for \$1000, payable to Mr. Metz as above; plans at office of Endress & Walsh, architects, Littlefield Bldg., Austin, and A. M. McCallum, superintendent of Austin public schools, or may be had on deposit of \$25.

Tex., Austin.—University of Texas will erect mess hall.

Tex., Corpus Christi.—School Board accepted plans for three ward schools; brick and concrete; six rooms and auditorium; cost \$12,000. (Recently noted.)

Tex., Houston Heights.—School Board, O. P. Woodburn, president, will expend \$20,000 to erect addition to Harvard school; 10 rooms; ordinary construction; gravity low-pressure steam heat; cement sidewalks; composition roof. (Recently noted to receive bids until July 5.)

Tex., Lytton Springs.—School Board, J. H. Compton, president, will expend \$5000 to erect school building; 46x72 feet; mill construction; improved heaters; Spanish tile roof; plans by R. L. Pierce, San Antonio, Tex. (Recently noted to receive bids until June 27.)

Tex., Meridian.—School Board will receive bids until July 5 to erect school; two stories and basement; brick and stone; certified check for \$300; plans and specifications at office of First National Bank, Meridian, and Walter E. Taylor, architect, Fort Worth, Tex.

Tex., Stamford.—City plans to issue \$25,000 of bonds to erect school. Address The Mayor.

Tex., Woodson.—C. H. Lienbach, Mineral Wells, Tex., prepared plans for two-story stone school.

Va., Richmond.—School Board, C. P. Walford, Clerk and Supervisor, will receive bids until July 8 to erect school on Chaffin St.; separate bids for erection of stone and concrete building and for furnishing and installing heating and ventilating system; certified check for \$400 with building bids and for \$200 with heating bids; plans and specifications at office of board, Room 402 City Hall, and C. M. Robinson, architect, 112 Deep Run St., Richmond.

STORES

Ala., Birmingham.—Wood & Crab Company will erect one-story brick store on Ave. H.; cost \$10,000.

Ala., Tallahassee.—People's Savings Bank is ready to receive bids to erect store and bank building. (See "Bank and Office Buildings.")

Ala., Ragland.—McNeill Bros. building will be 25x75 feet; two stories; brick; day labor. (Recently noted.)

Ala., Tuscaloosa.—W. F. Fitts, Jr., has plans by E. J. Ostling & Son, Tuscaloosa, for store; two stories and basement; 21x129 feet; brick, stone and marble; cost \$7500.

Ala., Tuscaloosa.—Burchfield Bros. have plans by E. J. Ostling & Son, Tuscaloosa, for wholesale grocery store; 60x100 feet; three stories and basement; concrete and brick, cut stone, marble and pressed brick; elevator; cost \$25,000.

Ala., Tuscaloosa.—Tom Anderson has plans by E. J. Ostling & Son, Tuscaloosa, for building; 30x75 feet; brick, stone and marble; cost \$3500.

Fla., Brownsville.—Saxon & Co. will erect business building; two stories; 42x70 feet; lower floor for store and postoffice; upper floor for hall.

Ark., Warren.—Glasgow Bros. will erect three stores; brick.

D. C., Washington.—Hecht & Co., 513-517 7th St., will erect addition to store at 511 7th St.; fireproof; four stories; 23x150 feet; plunger elevator.

Fla., Jacksonville.—J. S. Price will erect two-story concrete building at Forest St. and Myrtle Ave.

Fla., Miami.—Board of Trade will erect building on Ave. C. (See "Bank and Office.")

Fla., Palmetto.—J. A. Lamb and others will expend \$10,000 to erect store and office building recently noted; two stories; 90x65 feet; mill construction; electric lighting; bids opened July 1. (See "Machinery Wanted.")

Fla., Tampa.—L. J. Jones will erect business building; concrete construction.

Ga., Atlanta.—Trust Company of the South incorporated by W. S. Loundsbury and others; will erect store and office building. (See "Bank and Office.")

Ga., Atlanta.—E. W. Alfriend will expend \$3000 to erect addition to building at Peachtree and Harris Sts.

Ga., Atlanta.—L. G. Howell will erect two-story business building at 129-31 Whitehall St.; will lease same to Ney & Cummings.

Ga., Atlanta.—L. G. Gordon will expend \$15,000 to repair building at 258-60 Peters St.; cost \$15,000.

Ga., Atlanta.—Dickey estate will erect stores at 399 Peachtree St.; cost \$10,500.

Ga., Hartwell.—Dr. I. L. McCurry plans to erect store.

Ga., Hartwell.—A. G. and Julian McCurry plan to erect store.

Ga., Hartwell.—A. G. McCurry is planning to erect store building.

Ga., Hartwell.—Dr. J. I. Jenkins is planning to erect store.

Ky., Dixon, R. F. D. No. 4.—Townsend Bros. will rebuild business building; 24x80 feet; fireproof; metal or gravel roof. (Recently reported burned.)

Ky., Louisville.—Broadway & Fourth Avenue Realty Co., Louis Seelbach, president, has plans by McDonald & Dodd, Lincoln Bank Bldg., Louisville, for store building; lot 170x122 feet; one story; ordinary construction; steam heat; electric lighting; gravel roof; cost \$40,000; bids opened about August 1; architects may be addressed. (Recently noted.)

Ky., Louisville.—J. H. Fleck will erect frame store at 930 Baxter Ave.; cost \$3500.

Ky., Paris.—S. H. Kress & Co., 396 Broadway, New York, will erect business block; three stories; white pressed brick; store on lower floor; offices above; cost \$25,000 to \$30,000.

La., New Orleans.—F. Saens will erect two-story brick building on Tulane Ave.; cost \$6500.

Md., Baltimore.—John N. Pickering, 318 N. Howard St., will erect one and two-story addition to building at 321 N. Howard St.; brick construction.

Mo., St. Louis.—Henry Flair will erect store at 2009 Arsenal Ave.; two stories; cost \$6000.

Mo., St. Louis.—Consolidated Investment Co. will alter Century Bldg., portion to be occupied by Scruggs-Vandervoort-Barney Dry Goods Co.; will erect building in alley to connect Century and Syndicate Trust buildings; cost \$50,000.

Mo., St. Louis.—F. A. Steer Furnishing Goods Co. leased building at 9th and Olive Sts. and adjoining structure at 822 Olive St.; is having plans prepared by Baker & Knell, St. Louis, for improvements; will convert into one store, erect fireproof mezzanine floor, install new fronts, etc.

Mo., St. Louis.—T. L. Dagenhardt will erect two-story \$8000 store and \$800 stable at 3815 California Ave.

N. C., Newbern.—J. B. Blades will erect business building at Front and Middle Sts.; brick.

N. C., Wadesboro.—Parsons Drug Co. will erect building to replace collapsed structure; three stories and basement; pressed brick; plate-glass front.

N. C., Wilmington.—Samuel Bear, Sr., & Sons are having plans prepared by B. H. Stephens, Wilmington, for store building to contain several stores; steel frame; ornamental pressed brick front; three stories; 66x90 feet; cost \$20,000.

S. C., Columbia.—Dr. J. E. Poore will erect building at Blossom and Sumter Sts.; cost \$5000.

S. C., Darlington.—W. D. Coggeshall will expend \$25,000 to erect business building recently noted; 200x170 feet; ordinary construction; furnace; electric lighting; metal

roof; plans and construction by owner. (See "Machinery Wanted.")

S. C., Greenville.—Dr. Davis Furman and W. L. Gassaway will erect business buildings on Main St.

Tenn., Memphis.—J. M. Toohy awarded contract to J. E. Hollingsworth, Memphis, to erect store on Main St. between Huling and Butler Aves.; cost \$30,000.

Tenn., Memphis.—J. P. Chase will erect building at Poplar Ave. and 2d St.; one story; frontage 300 feet; cost \$18,000; plans by G. M. Shaw, Memphis.

Tex., Dallas.—B. R. Parks will rebuild Oram Bldg. on Elm St. between Akard and Stone Sts.; will convert into store building, install high-speed elevators, automatic sprinkler system, construct full basement, etc.; cost \$35,000; plans by Lang & Wittich, Dallas. (Recently noted.)

Tex., Houston.—Mayor and Board of School Commissioners will expend \$65,000 to erect school building recently noted; three stories; fireproof construction; combination fan and gravity system of heating; gravel roof; plans by C. H. Page & Bro., 717 Union National Bank Bldg., Houston, Tex.; bids received and contract let July 29. (See "Machinery Wanted.")

Tex., Mart.—Rabe Wilson will erect business building; brick; 50x80 feet.

Tex., San Antonio.—George Saur has plans by Behles & Boelhaue for store and office building at Loyola and College Sts.; two stories at present, but foundation to support four additional stories; 30x105 feet; brick, iron and stone construction; steam heat; lower floor for stores; upper floor for offices; is also having plans prepared by same architects for store and apartment building at Avenue D and 5th St.; two stories; 50x150 feet; lower floor for stores; upper floor for apartments.

Tex., San Antonio.—L. J. Hart has plans by Henry T. Phelps, San Antonio, for store and lodge building; two stories and basement; reinforced concrete columns and girder bearings; two stories and basement at present; foundation to support four additional stories; first floor for four stores; second floor for lodges, etc.

Tex., Temple.—Dr. J. S. McCelvey has plans by E. D. Maxwell for store and office building; 60x110 feet; semi-fireproof construction; direct steam (gravity system) heat; gas and electric lighting; cement sidewalks; slag or tar and gravel roof; cost \$20,000; plans will be ready in about two weeks, and may be had by addressing architect. (Recently noted.)

W. Va., Beckley.—L. F. Crosier will erect business building at Heber and Neville Sts.

W. Va., Beckley.—Dr. Abshire will erect business building on Neville St.

W. Va., Grafton.—Henry Wehn will erect business building.

Tex., Dallas.—Clayton D. Browne of Browne-Lloyd Sign Co. will erect store building; four stories; fireproof; cost \$40,000.

THEATERS

N. C., Winston-Salem.—Mrs. R. D. Davis will expend \$6000 to erect 23x20-foot addition and remodel building for moving-picture theater to be occupied by B. D. Craver and associates; electric lighting; day labor. (Previously noted.)

WAREHOUSES

Ala., Birmingham.—Wood-Crabbe Grain Co. will erect warehouse; one story; brick.

Ala., Dancy.—Dancy Warehouse & Brokerage Co. contemplates erecting warehouse; 60x100 feet; galvanized-iron roofing and walls.

Ga., Macon.—Southern Bonded Warehouse (J. F. Heard and others) will expend \$10,000 to erect warehouse; 540x125 feet; fireproof construction; electric lighting; tin or fireproof roofing; architect not selected. (Recently noted.)

Mo., St. Louis.—American Manufacturing Co. will erect one-story warehouse at 1101 S. 10th St.; cost \$9000.

Okl., Oklahoma City.—R. V. Moran, it is reported, will erect warehouse at Main St. and Santa Fe Railroad tracks; cost \$375,000.

S. C., Darlington.—W. D. Coggeshall will expend \$5000 to erect warehouse; 200x100 feet; mill construction; electric lighting; metal roof; plans and construction by owner. (Recently noted.)

Tex., Houston.—H. B. Rice, Mayor, will receive bids until July 15 to erect warehouse and tank vault. (See "City and County.")

Tex., Lockhart.—W. B. Sites Cottonseed Co. will erect warehouse on E. Market St.; will operate cottonseed mill later.

BUILDING CONTRACTS AWARDED

APARTMENT-HOUSES

Mo., St. Louis.—L. H. Levy, 600 Broadway, awarded contract to Mr. Worthington to erect apartment-house recently noted; 84x100 feet; ordinary construction; steam heat; tile roof; cost \$35,000; plans by W. H. Mills, St. Louis. (See "Machinery Wanted.")

Mo., Kansas City.—H. D. Yoder, 507 Commerce Bldg., awarded contract to C. L. Brown, 410 Long Bldg., Kansas City, to erect apartment-house; 46x51 feet; mill construction; six apartments; four rooms, bath and disappearing bed; steam heat; electric lighting; Carey's roofing; plans by Clyde F. Mack, 410 Long Bldg., Kansas City. (Previously noted.)

ASSOCIATION AND FRATERNAL

Ala., Gadsden.—Independent Order of Odd Fellows awarded contract to A. W. Moyers, Gadsden, to erect building; brick and stone; two stories; cost \$6500.

Ark., Little Rock.—Al Amin Temple, Ancient Arabic Nobles of the Mystic Shrine, awarded contract to W. A. Stanton, Little Rock, to erect temple at 21st and Main Sts.; cost \$30,100.

Md., Baltimore.—West Baltimore Branch, Young Men's Christian Association, Baltimore and Carey Sts., awarded contract to Julius E. Pyles, 230 N. Gilmor St., Baltimore, to improve building; will install bowling alleys, gymnasium building, additional electric lighting, etc.; plans by John Freund, Jr., 210 E. Lexington St., Baltimore. (Previously noted.)

BANK AND OFFICE

Ark., Texarkana.—Texarkana National Bank awarded contract to Steininger Construction Co., St. Louis, Mo., to erect bank and office building; eight stories; 25x150 feet; terra-cotta and fire-brick; steel frame; cost \$150,000. (Previously noted.)

Fla., Titusville.—Bank of Titusville awarded contract to V. E. Lewis, Fulford, Fla., to erect bank building; 20x50 feet; fireproof construction; latrobe stoves and fireplaces; metal roof; cost \$4500. (Recently noted.)

Va., Princeton.—Virginian Railway, H. Fernstrom, chief engineer, Norfolk, Va., awarded contract to John P. Pettyjohn & Co., 212 8th St., Lynchburg, Va., to erect proposed two-story 50x90-foot office building.

CHURCHES

Ark., Malvern.—First Baptist Church awarded contract to Thos. F. Campbell, Little Rock, Ark., to erect edifice; brick; cost \$10,500.

Ky., Danville.—Christian Church awarded contract to Newt Powell, Winchester, Ky., to erect edifice; cost \$85,000. (Recently noted.)

Mo., St. Joseph.—St. Mary's Catholic Church, Rev. James Brady, pastor, awarded contract to George & Burnett, St. Joseph, to erect edifice at 2d and Cherry Sts.; 60x125 feet; cost \$40,000.

Tenn., Memphis.—Christian Union Workers' Church awarded contract to Samuel Bass, Memphis, to erect edifice at 1360-12 Florida St.; cost \$3000.

Va., Richmond.—Sister Gertrude Head, Order of St. Benedict, awarded contract to Boyle-Robertson Construction Co., Union Trust Bldg., Washington, D. C., to erect dwelling and chapel on Stewart Ave.; two stories and basement; brick; cost \$20,000.

CITY AND COUNTY

Tex., Houston.—Library.—City awarded contract to Goins & Sons, Houston, to erect colored Carnegie Library building; two stories; brick; cost \$15,000.

W. Va., Wheeling.—Engine-house.—Board of Control awarded contract to Ott-Helskel, Wheeling, to erect chemical engine-house.

COURTHOUSES

Fla., Bushnell.—Sumter County Commissioners awarded contract to erect courthouse; two stories surmounted by tower; reinforced concrete; pressed-brick sides; cost \$60,000. (Recently noted.)

DWELLINGS

Fla., Fellsmere.—Leander P. Gomez awarded contract to Williams & Kessler, Fellsmere, to erect proposed dwelling; 20x20 feet; 10x10-foot kitchen; mill construction; shingle roof; plans by N. G. Williams.

Fla., Lakeland.—C. M. Clayton awarded contract to Mann Construction Co. to erect proposed dwelling; 10 rooms; ordinary construction; cypress shingle roof; cost \$5000; plans by Guy Platt Johnson, Lakeland.

Fla., Lakeland.—J. E. Melton awarded contract to Mann Construction Co. to erect dwelling; 11 rooms; ordinary construction; cypress shingle roof; cost \$5000; plans by Guy Platt Johnson, Lakeland.

Ga., Atlanta.—Mrs. C. Z. Mayson, Decatur, Ga., has plans by and awarded contract to J. B. Hart, 316 Fourth National Bank Bldg., Atlanta, to erect dwelling; 12 rooms; brick veneer; hot-water heat; gas and electric lighting; tile roof; cost \$8000. (Recently noted.)

Ga., Atlanta.—B. Davison awarded contract to C. B. Myers Construction Co. to erect dwelling; hot-water heat; tile roof; plans by E. C. Dougherty, Candler Bldg., Atlanta. (Recently noted under "Stores" to erect building to cost \$25,000.)

Ga., Columbus.—B. S. Miller awarded contract to W. E. Washburn, Atlanta, Ga., to erect dwelling; 80x110 feet; two stories and basement; hollow tile and reinforced concrete construction; also garage and servants' house; cost \$25,000; plans by A. Ten Eyck Brown, Atlanta, Ga. (Recently noted.)

Ga., Macon.—Thurston Hatcher awarded contract to R. A. Hatcher, 614 Chevy St., Macon, to erect dwelling to replace building recently reported burned; seven or eight rooms; hot-water heat; electric lighting; slate roof; cost \$5000 to \$5500; plans by Hentz & Reid, Candler Bldg., Atlanta, Ga.

Ky., Frankfort.—Sinking Fund Commission of Kentucky awarded contract to erect Governor's mansion. (See "Government and State.")

Md., Baltimore.—Mrs. Mary Fear has plans by F. E. Beall, 213 St. Paul St., Baltimore, for five two-story dwellings at 1919-1927 Clifton Ave.; iron-spot brick; 14x44 feet; cost \$8000; awarded contract to H. W. Thomas.

Mo., Kansas City.—W. W. Ulch awarded contract to Joseph Hellman, Kansas City, to erect residence; two stories; brick and stone; cost \$17,000; plans by Sheppard, Farrar & Wiser, Kansas City.

Mo., Kansas City.—George E. Rice awarded contract to C. L. Brown, Kansas City, to erect residence at 45 E. 55th St. Terrace; cost \$14,000.

Mo., St. Louis.—Celestine Real Estate Building & Construction Co., 802 Chestnut St., has plans by and awarded contract to Fred W. Schraumm, 802 Chestnut St., St. Louis, to erect dwelling recently noted; two stories; furnace; slate roof. (See "Machinery Wanted.")

N. C., Hendersonville.—R. N. Wilcox awarded contract to A. J. Bain, Hendersonville, to erect proposed dwelling; 44x44 feet; two stories; frame; hot-air heat; electric lighting; metal shingle roof; cost \$5000 to \$6000; plans by owner.

Okl., Oklahoma City.—C. R. Hoffer awarded contract to Stewart & Wilderson, Oklahoma City, to erect dwelling at 3701 N. McKinley Ave.; two stories; red paving brick; cost \$20,000.

Tenn., Memphis.—B. M. Stanton awarded contract to J. J. Mackey, Memphis, to erect residence at 1155 Greenlaw Ave.; cost \$3200.

Tenn., Memphis.—J. W. Wood awarded contract to A. Coats, Memphis, to erect residence; cost \$7000.

Tenn., Memphis.—H. C. Williamson awarded contract to E. Evarson, Memphis, to erect residence at 1294 Peabody Ave.; cost \$6900.

Tenn., Memphis.—A. E. Kelly awarded contract to J. E. Gates, Memphis, to erect residence at 1755 Parkway; cost \$5400.

Tenn., Memphis.—M. H. Palmer awarded contract to Palmer Bros. & Calahan, Memphis, to erect residence at 138 N. Tucker St.; cost \$3000.

Tenn., Memphis.—Mrs. Hattie Rodwell awarded contract to M. J. Gallagher, Memphis, to erect residence at 415 Montgomery St.; cost \$8400.

Tenn., Memphis.—Mrs. R. A. Forrest awarded contract to W. M. Brown, Memphis, to erect residence at 28 Angelus Pl.; cost \$3400.

Tenn., Memphis.—Mrs. M. P. Thornton awarded contract to Thomas James, Memphis, to erect residence at 153 Evergreen Pl.; cost \$4000.

Tenn., Memphis.—J. H. Morris awarded contract to C. H. Scott, Memphis, to erect residences at 917 and 921 Trigg Ave.; total cost, \$3800.

Tenn., Memphis.—Mrs. J. P. Barchus awarded contract to J. E. Cole, Memphis, to erect residence at 341 Stonewall Pl.; cost \$6200.

Tex., Dallas.—Hugh Perry awarded contract to Downing-Belcher Construction Co., Dallas, to erect residence; furnace; shingle roof; cost \$8000; plans by C. W. Bulger & Son, Dallas. (Recently noted.)

Tex., Galveston.—Security Investment Co., L. Erickson, president, awarded contract to Charles Schumacker, 22d St. and Ave. C, Galveston, to erect 11 bungalows; five and six rooms; cost \$20,000. (Recently noted.)

Tex., Yoakum.—C. T. Wade awarded contract to erect residence.

Va., Norfolk.—Abbey Land Corporation awarded contract to R. L. McClannan, 136 Corpore Ave., Norfolk, to erect 20 dwellings; 20x30 feet; ordinary construction; electric lighting; gravel roof; cost \$36,900; plans by Norman W. Sorey, Norfolk. (Mr. McClannan recently noted as lowest bidder.)

Va., Richmond.—Mrs. Carrie Schwartz awarded contract to George L. Priddy, Richmond, to erect brick dwelling on Park Ave. between Mulberry and Robinson Sts.; cost \$10,000.

Va., Richmond.—May R. Wingfield awarded contract to J. E. Carr, Richmond, to erect frame dwelling on W. 34th St. between Leigh and M Sts.; cost \$2000.

Va., Richmond.—Mrs. L. O. Howard awarded contract to W. J. Johnson, Richmond, to erect brick dwelling on 32d St.; cost \$4000.

Va., Richmond.—Charles W. Eaton awarded contract to Peers & Co., Richmond, to erect proposed dwelling at Ginter Park; 36x50 feet; lot 100x242 feet; ordinary construction; furnace; electric lighting; cost \$7000; slate roof; plans by Mrs. Agnes Johnston Eaton, Richmond.

Va., Richmond.—Sister Gertrude Head awarded contract to erect dwelling and chapel. (See "Churches.")

W. Va., Charleston.—First Methodist Episcopal Church awarded contract to Barnett & Given, Charleston, to erect parsonage; two stories; brick; cost \$974; plans by David Dick.

GOVERNMENT AND STATE

Ky., Frankfort.—Governor's Mansion.—Sinking Fund Commission of Kentucky awarded contract to Capital Lumber & Manufacturing Co., Frankfort, to erect Governor's mansion; plans by Webber Bros., Fort Thomas, Ky. (Recently noted.)

HOTELS

Ala., Decatur.—E. Lyons and William McNeill awarded contract to R. G. Ross, New Decatur, Ala., to erect hotel at Bank and Walnut Sts.; 75x100 feet; four stories; electric passenger and freight station; cost \$50,000; plans by H. D. Breeding, Birmingham, Ala. (Recently noted.)

Ark., Earle.—Mrs. L. M. Gauss awarded contract to erect \$20,000 building to replace Earle Hotel recently burned.

Miss., Magee.—Mrs. Emma Walker awarded contract to H. A. Polk to erect hotel to replace burned structure; two stories; frame.

Tex., San Antonio.—Hutchins House awarded contract to erect addition to provide kitchen, servants' quarters, dining-rooms, etc.; cost \$14,000.

MISCELLANEOUS

Miss., Meridian.—Fair.—Mississippi-Alabama Fair Association trustees awarded contracts to erect fair building, including machinery hall 100x180 feet with 20-foot walls, 50-foot additions to both grandstand and bleachers and covering for latter, 150-stall horse shed, etc. (Previously noted.)

RAILWAY STATIONS

W. Va., Huntington.—Chesapeake & Ohio Railway, F. I. Cabell, chief engineer, Richmond, Va., awarded contract to A. M. Walkup, Norfolk, to erect depot; three stories; cost \$100,000; track extensions, trainsheds, etc., to cost \$50,000 additional. (Recently noted.)

SCHOOLS

Fla., Bradenton.—Manatee County Board of Public Instruction awarded contract at approximately \$60,000 to I. F. Jones, Bartow, Fla., to erect brick high schools at Bradenton, Palmetto and Sarasota, and grammar schools at Terra Cela, Cortez, Palma Sola, Fla., and to J. B. Rogers, to erect school at Durham, Fla.; also awarded contracts to Roy Parker, Bradenton, for electric work and John Resenberger for plumbing at high schools; plans by Willis R. Biggers, Tampa. (Recently noted.)

Fla., Cortez.—Manatee County Board of Public Instruction, Bradenton, Fla., awarded contract to erect grammar school. (See Fla., Bradenton.)

Fla., Palmetto.—Manatee County Board of

Public Instruction, Bradenton, Fla., awarded contract to erect high school. (See Fla., Bradenton.)

Fla., Palma Sola.—Manatee County Board of Education, Bradenton, Fla., awarded contract to erect grammar school. (See Fla., Bradenton.)

Fla., Sarasota.—Manatee County Board of Public Instruction, Bradenton, Fla., awarded contract to erect high school. (See Fla., Bradenton.)

Fla., Terra Cela.—Manatee County Board of Public Instruction, Bradenton, Fla., awarded contract to erect grammar school. (See Fla., Bradenton.)

Ky., Louisville.—Board of Education awarded contract at \$25,281 to George H. Romei & Co., Louisville, to erect Montgomery school addition; four rooms and gymnasium, 32x63 feet; fireproof flooring in each room of old building; awarded contract at \$4894 to Frey Planing Mill Co., Louisville, for improvements to school on Gray St. for open-air school; plans by J. E. Henry, Louisville. (Recently noted.)

Okl., Oklahoma City.—Frank H. Scheiner & J. G. Wras awarded contract to Gross Construction Co., Oklahoma City, to erect proposed musical institution; 129x50 feet; fireproof construction; steam heat; gravel and wire-glass roof; cost \$20,000; plans by Van Slyke & Woodruff. (Recently noted.)

S. C., Columbia.—Trustees of University of South Carolina awarded contract to King Lumber Co., Charlottesville, Va., to erect dormitory; three stories and basement; brick and stucco; granite trimmings; cost \$40,000; plans by Wilson & Sompayrac, Columbia. (Recently noted.)

Tenn., East Lake.—Hamilton County School Board, Chattanooga, Tenn., awarded contract at \$23,000 to A. W. Duncan & Son, Chattanooga, Tenn., to erect school; 11 rooms and auditorium; plans by Huntington & Sears, 1202-4 James Bldg., Chattanooga, Tenn. (Recently noted.)

Va., Williamsburg.—William and Mary College building committee awarded contract at \$6057 to R. H. Richardson & Son, Hampton, Va., to repair Brufferton and Ewell buildings and at \$1213 to William G. Morris, Phoebus, Va., for plumbing and heating; plans by C. Taylor Holtzclaw, Hampton, Va. (Recently noted.)

STORES

Ala., Carrollton.—J. E. Upchurch will expend \$3300 to erect store building; 27x105 feet; ordinary construction; brick; probably acetylene lighting; tin roof; contract recently noted awarded to Lindamood & Puckett, Columbus, Miss.

Ga., Savannah.—F. P. McIntire, attorney, has plans by and awarded contract to Collins Brothers Company, Savannah, to remodel store for Morris-Sullivan Dry Goods Co. and Byck Bros. Shoe Co.; copper and marble front; ordinary construction; electric elevator; metal roof; cost \$20,000. (Recently noted.)

Ga., Savannah.—M. K. Jones Furniture Co. has plans by and awarded contract to Collins Brothers Company, Savannah, to erect store; 60x90 feet; ordinary construction; metal roof; cost \$12,000. (Recently noted.)

Tex., Dallas.—Hippodrome Theater & Amusement Co. awarded contract to erect store and theater building. (See "Theaters.")

Tex., Dallas.—C. C. Slaughter awarded contract to J. M. Green, 2421 Caddo St., Dallas, to erect building to be occupied by F. W. Woolworth Company of New York; 75x100 feet; two stories; ordinary construction; gravity heat; gas and electric lighting; interior floor lights; freight elevator; rat pitch and gravel roof; cost \$25,000; plans by J. W. Rowe, 315 Slaughter Bldg., Dallas. (See "Machinery Wanted.")

Tex., Fort Worth.—Burton Dry Goods Co. awarded contracts for improvements to store building, including system of double show windows, glass front, sides and back; vestibule 8x120 feet; another set of French plate-glass show windows in rear of vestibule, this improvement to cost \$25,000 to \$30,000; will install two passenger elevators, each with capacity of 25 to 30 people, to cost \$7000; also expend \$7500 to install system of automatic telephones and automatic cash registers.

Tex., Mart.—W. H. Criswell has plans by and awarded contract to R. Wilson, Mart, to erect store; 25x100 feet; ordinary construction; brick; electric lighting; tin roof; sanitary floor; metal ceiling; cost \$3500. (Recently noted.)

Tex., Normangee.—Wooley & Rogers awarded contract to Martin & Hubbard, Teague, Tex., to erect two business buildings; brick.

Tex., Normangee.—J. H. DuBois awarded

contract to Martin & Hubbard, Teague, Tex., to erect brick business building.

Tex., Normangee.—T. W. Brown awarded contract to Martin & Hubbard, Teague, Tex., to erect brick business building.

Tex., Terrell.—Harris Brin awarded contract to John McGraw, Terrell, to erect business building and to P. C. Greathouse, Terrell, for carpentry work; two stories; ornamental brick front.

Va., Richmond.—Joseph Oppleman awarded contract to R. M. Hoskins, Richmond, to erect brick store at 1619 Hull St.; cost \$4150.

THEATERS

Tex., Dallas.—Hippodrome Theater & Amusement Co. awarded contract to Gilsonite Construction Co., Dallas and St. Louis, Mo., to erect theater; reinforced concrete; fireproof; four stories on lower floor; refrigerator cooling system; seating capacity 1300; cost \$55,000; plans by Lang & Wittell, Dallas. (Previously noted.)

Va., Norfolk.—Mrs. M. A. Milhods awarded contract to Gregory & Williamson, Norfolk, to remodel building for moving-picture theater, etc.; 19x57 feet; three stories; brick and wood; steam heat; metal roof; cost \$4000; plans by Ferguson, Calrow & Taylor, Norfolk.

RAILROAD CONSTRUCTION

RAILWAYS

Ala., Tuscaloosa.—Birmingham & Gulf Railroad, 16 miles long, will, it is reported, convert line to electric operation. Marvin Copeland is superintendent at Tuscaloosa, Ala.

Ark., Marianna.—Construction is reported advancing rapidly on the new line of the Missouri Pacific-Iron Mountain route from Marianna from Marianna to Memphis, about 47 miles. List & Gifford Construction Co. of Kansas City will complete steam-shovel work within a month. At the St. Francis River the Kansas City Bridge Co. is erecting a steel drawbridge.

Fla., Tampa.—Clearing right of way is reported begun for the Atlantic, Okeechobee & Gulf Railway near Six-Mile Creek, between Tampa and Ruskin, on line which is to extend to Arcadia and Fort Lauderdale, Fla. Hiram McElroy is chief engineer at Tampa, Fla.

Ga., Augusta.—W. B. Denham, general manager of the Georgia & Florida Railway, is reported saying that John W. Bushnell is surveying for its contemplated line from St. Clair to Augusta, about 30 miles.

Ga., Darien.—Georgia Coast & Piedmont Railroad will build 15 miles from Darien to Brunswick, Ga., and 40 miles from Reidsville or Glenville to Vidalia, Ga. Contract let to Virginia Bridge & Iron Co., Roanoke, Va., for two 24-foot drawbridges and one 4-foot half through plate girder bridge. There will also be thirteen 66-foot deck girder approaches. General contract will be awarded for structures other than those mentioned July 15. A. de Sola Mendes is general manager and J. H. Granbery chief engineer, both at Darien, Ga.

Ga., Moultrie.—Flint River & Northeastern Railroad Co. has awarded contract to John F. Lamb of Thomasville, Ga., to reduce grade, make fills and surface its line between Felham and Doerun, Ga. Estimated about 50,000 yards of earth to handle. F. R. Pidcock, Moultrie, Ga., is vice-president and general manager, as well as of the Georgia Northern Railway.

Ky., Hickman.—Chicago, Memphis & Gulf Railroad is reported preparing to extend line beyond Hickman. S. G. Latta is president and general manager at Dyersburg, Tenn.

Ky., Frankfort.—Frankfort & Shelbyville Realty Co. is incorporated to acquire right of way from Frankfort to Shelbyville for proposed interurban railway; incorporators, R. D. Armstrong, Col. E. H. Taylor, Jr., Ell H. Brown and others of Frankfort; W. B. Middleton, W. M. Nash, J. W. Gudgel and others of Shelbyville, Ky.

Ky., Versailles.—Louisville & Nashville Railroad is reported to have awarded contract to Claude Mimms to fill in trestles to the amount of 300,000 cubic yards of material, this being on the Louisville & Atlantic Railroad.

Ky., Winchester.—Reported that Johnson & Briggs have a subcontract for seven miles of Louisville & Nashville's new line from Winchester to Irvine, general contract for which is in hands of Winston & Co., Richmond, Va., and 290 Broadway, New York. Emery Contracting Co. is also reported to have subcontract for most of concrete work.

Md., Princess Anne.—J. W. West, secretary and treasurer of the Eastern Shore Power,

WAREHOUSES

Ga., Atlanta.—Georgia Terminal Co. awarded contract to Industrial Engineering Co., New York, to erect commercial warehouse; five stories; 300x60 feet; fireproof construction; steam heat; electric lighting; electric elevator; concrete, tar and gravel roofing; cost \$110,000; plans by engineering department of Atlanta, Birmingham & Atlantic Railroad of Atlanta; entire structure covered by one contract except elevators and sprinkler system. (Recently noted.)

Ga., Moultrie.—Farmers & Merchants' Warehouse Co. has plans by and awarded contract to J. W. Coleman, Moultrie, to erect warehouse; 180x300 feet; brick; metal roof; cost \$15,000. (Mr. Coleman recently noted to erect warehouse.)

S. C., Gaffney.—H. D. Wheat awarded contract to Curry & Service, Gaffney, to erect warehouse at Irene Mill.

S. C., Charleston.—Southeastern Warehouse Co., H. G. Leiding, president, awarded contract at \$30,369 to Simons-Mayrant Company, Charleston, to erect warehouse at Hasell and Concord Sts.; two stories; 42,000 square feet floor space; electric elevators; sprinkler system. (Recently noted.)

Light & Railway Co., says that work of obtaining right of way for its proposed electric railway from Deal's Island to Snow Hill, about 40 miles, will begin July 8. Financing appears to be assured. L. M. Milbourne is president, at Kingston, Md.

Miss., Columbus.—Columbus Business League, it is reported, will ask city to call election on \$50,000 of bonds to aid construction of proposed Memphis, Columbus & Gulf Railroad, promoted by G. T. Heard to run from Okolona to Aberdeen, Columbus and Caledonia, Miss., and Aliceville and Pickensville, Ala., about 80 miles. Another report says incorporation papers have been filed in Alabama.

Miss., Gulfport.—President W. H. Hardy of the Gulfport & Western Railroad Co., Gulfport, Miss., says that the proposed line is from Gulfport to Covington, La., 62 miles, via Nicholson, on the New Orleans & Northeastern Railway. There will be steel bridges over Wolfe, Jordan, East Pearl and West Pearl Rivers. Route is practically level. Date to receive bids for construction not yet announced. L. N. Dantzer is vice-president, George P. Hewes, treasurer, B. C. Bowers secretary, all at Gulfport, and E. McL. Lang, 172 Fulton St., New York, chief engineer. Others interested as directors are T. A. Hardy and A. McAlpin of Gulfport, and H. S. Weston of Logtown, Miss.

Miss., Gulfport.—R. H. Howard, general manager New Orleans Great Northern Railroad, says there are no developments at present regarding the proposed extension to Gulfport. This refers to a recent press report.

Miss., Meridian.—J. A. Perdue & Co. are reported given subcontract for entire line of Meridian & Memphis Railway from Meridian to Union, Miss., about 40 miles. Morey-Faulhaber Construction Co. of St. Louis is general contractor. S. A. Neville of Meridian, Miss., is president of road.

Mo., Columbia.—Reported that a railroad 12 miles long will be built from Columbia to coal mines at cost of \$120,000. Board of Trade may give information.

N. C., Gastonia.—Piedmont & Northern Lines are reported to have completed electric interurban railway all the way into Gastonia, making road complete from Charlotte.

N. C., Thomasville.—Reported that the Piedmont Railway will be hereafter called Carolina & Yadkin River Railroad, and it is expected extension will be built to the Yadkin River. Survey is in progress. Bird S. Coler of New York City is president and T. J. Jerome, Salisbury, N. C., vice-president.

Okla., Alva.—H. A. Noah of Alva is reported saying that capital has been obtained and construction will begin on the St. Louis, Bartlesville & Pacific Railway between Alva and Des Moines, N. M. Entire line is to be 864 miles long.

Okla., Bartlesville.—J. J. Curl, president of Bartlesville Interurban Railway, is quoted saying that \$600,000 of bonds are sold for extension from Dewey, Okla., to Caney, Kans., 30 miles, and work will begin about July 1.

Okla., Lawton.—J. L. Hamon of the Ardmore, Lawton & Duncan Railway Co. is quoted as saying that work will begin July 15 on the line from Lawton to Ardmore, Okla., and Sherman, Tex., 100 miles.

Okla., Lawton.—B. R. Stephens of the

Lawton Electric Railway & Power Co. is quoted saying that construction of the line from Lawton to Fort Sill, six miles, awaits only approval of plans by the War Department, and it is expected that work will begin by July 1.

Okla., Oklahoma City.—Dunlap, Northern & Pacific Railway Co. is quoted as announcing that construction of its proposed line from Dunlap, Okla., to Ellis, Kans., 150 miles, will begin August 1. H. D. Knight, W. P. Rodman and others of Oklahoma City are the incorporators. (See Manufacturers Record May 9.)

S. C., Greenville.—The Greenville, Spartanburg & Anderson Railway has laid track from Greenwood to Belton, 39 miles, and tracklaying from Belton to Greenville may begin any day, the road being graded. Construction will begin within a month in the other direction from Greenville to Spartanburg.

Tenn., Clarksville.—N. Stoneking of Newport, Ky., is reported awarded contract for extension of Louisville & Nashville Railroad to terminals in Clarksville.

Tenn., Iron City.—Tennessee Railroad Co., capital \$10,000, is chartered to build a railroad from Iron City to Olive Hill, Tenn., about 35 miles; incorporators, C. N. Brady, R. D. Baker, W. W. Collier, I. P. Pendleton and John H. De Witt.

Tenn., Johnson City.—Johnson City Traction Co. will build electric railway from Johnson City to Elizabethton, 10 miles, and also to Jonesboro, 8 miles. W. V. N. Powelson is president and chief engineer, 60 Wall St., New York, and Greenville, Tenn. Amzi Smith, Johnson City, Tenn., is general manager. Backed by East Tennessee Electric Co., which was organized by Warren, Tucker & Co. and Wm. T. Pearson of Boston; W. V. N. Powelson, J. W. Ross and E. H. Shudro of New York, and Amzi Smith of Johnson City.

Tenn., Nashville.—Nashville & Gallatin Interurban Railway Co., now building from Nashville to Gallatin, Tenn., will, it is reported, make proposition about September 1 to Franklin and Bowling Green, Ky., to extend the line there, asking \$200,000 subscriptions to stock. H. H. Mayberry, Nashville, Tenn., is president.

Tex., Bryan.—Bryan & Brazos River Railway Co. is chartered to build from Bryan, in Brazos county, to a point west of the Brazos River, in Burleson county, about 25 miles. Capital \$50,000. Incorporators and directors, H. T. Lawler, H. T. Lawler, Jr., Jordan T. Lawler, J. W. Doremus, O. E. Saunders, W. E. Saunders, John K. Parker, E. H. Austin, H. Crenshaw and J. E. Butler, all of Brazos county.

Tex., Dalhart.—Waco capitalists, it is reported, will complete the End, Ochiltree & Western Railway from Dalhart via Dumas, Jarvis and Hansford to Ochiltree, Tex., about 100 miles. Headquarters at Dalhart. Road recently reported purchased by G. A. Vawter and O. J. McKnight.

Tex., Paris.—Construction is reported begun on the extension of the Paris & Mt. Pleasant Railway from Bogota to Mt. Pleasant, Tex., 28 miles. Camps are established at Gouldsboro, Trent Lake and Francis Branch. H. P. Mobberly, Paris, Tex., is chief engineer.

Tex., Jacksboro.—W. Frank Knox, secretary and treasurer Gulf, Texas & Western Railway Co., Praetorian Bldg., Dallas, Tex.,

says that contract has been let to the Texas Building Co. of Fort Worth, Tex., for the extension from Jacksboro to Salesville, 23½ miles, connecting there with the Weatherford, Mineral Wells & Northwestern Railway. J. J. Jernyn is president and Ben B. Cain vice-president and general manager of the road.

Tex., San Antonio.—President J. E. Franklin of the San Antonio, Uvalde & Gulf Railroad is reported saying that after the proposed extension to Corpus Christi is completed another extension will be built to Brownsville, Tex.

Tex., San Antonio.—Contract is reported let by San Antonio, Uvalde & Gulf Railroad for 2500 linear feet of trestling to the J. W. Yarbrough Construction Co. of San Antonio. A. R. Ponder is vice-president of the railroad.

Tex., San Benito.—San Benito & Rio Grande Valley Interurban Railway Co. has filed charter with \$500,000 capital to build 150 miles of line in addition to about 65 miles built by San Benito & Rio Grande Railroad. S. A. Robertson and others are interested.

Tex., Texarkana.—The Kansas City Southern Railway Co., according to an official letter, has not definitely arranged to construct a new depot and trackage at Texarkana.

Tex., Temple.—It appears, according to the statement of an officer of the company, that the Missouri, Kansas & Texas Railway has not decided to double-track its line from Temple to Echo.

Tex., Waco.—The Missouri, Kansas & Texas Railway Co. says that the improvements at Waco, including new terminals, yards, etc., are hoped to be completed early in September, and the work is being prosecuted as rapidly as possible.

W. Va., Bemis.—Greenbrier, Cheat & Elk Railroad Co. is reported to have made preliminary surveys for an 18-mile extension to connect with Western Maryland Railway near Bemis. E. P. Shaffer is manager, and A. A. Raphael is locating engineer at Bemis, W. Va.

W. Va., Morgantown.—Bids will be opened at 2 P. M. July 6 for construction of Morgantown & Dunkard Valley Railroad, 15 miles, from Cassville to Blacksville, W. Va., via Core and Pentress, including one through truss bridge of 125 feet span, four 75-foot plate girders and three 40-foot plate girders. Route is through rolling country. G. B. Hartley is chief engineer; J. Amie Martin, general manager; John Wallace, treasurer, and Frank P. Weaver, secretary.

STREET RAILWAYS

D. C., Washington.—The Washington Railway & Electric Co. is reported considering the possibility of building a new line to accommodate Cleveland Park and Tenallytown.

Ga., Macon.—Application has been made to charter the Georgia Traction Co. of Macon to build 12 miles of street railway tracks in Macon and suburbs; capital \$150,000; incorporators, W. J. Massee, J. T. Nyhan, T. D. Massee, A. L. Anderson, O. J. Massee, Jr., A. S. Bates, J. P. Stetson, G. W. Woodruff, Orville A. Park and E. S. Fetner.

Miss., Holly Springs.—Ordinance is published to grant street-railway franchise to E. G. Hammer. C. N. Dean is Mayor pro tem., and W. A. Anderson is City Clerk.

MACHINERY, PROPOSALS AND SUPPLIES WANTED

Manufacturers and others in need of machinery or supplies of any kind are requested to consult our advertising columns, and if they cannot find just what they wish, if they will send us particulars as to the kind of machinery or supplies needed we will make their wants known free of cost, and in this way secure the attention of manufacturers and dealers throughout the country. The Manufacturers Record has received during the week the following particulars as to machinery and supplies wanted.

Aluminum Checks.—A. F. Croal, 373 Spring St., Atlanta, Ga., wants information, etc. on aluminum checks.

Belting, etc.—Naranlal Maneklal Shah, 69 Apollo St., Fort, Bombay, India, wants addresses of American manufacturers of rawhide leather beltings and other leather goods used in mills.

Boilers.—See "Electrical Machinery, etc."

Bag-cleaning Machinery.—Burnett Bag & Burlap Co., 7 E. Camden St., Baltimore, Md., wants addresses of manufacturers of improved bag-cleaning machine to clean a number of bags at once.

Boilers.—Roland Jones, Nacogdoches, Tex., wires Manufacturers Record he wants

bids on two 72x18 horizontal return tubular boilers, insurance inspection 140 to 150 pressure; landed at San Augustine, Tex.

Bridges.—Georgia Coast & Piedmont Railroad Co., J. H. Cranberry, chief engineer, Darien, Ga., will let contract July 15 to construct 13 66-foot deck girder approaches.

Bridge Construction.—M. D. Hale, judge, Ouachita county, will let contract 11 A. M. July 8 at Camden, Ark., for constructing steel trestle bridge on west side of Ouachita River, connecting with bridge now being erected; plans may be seen by applying to county judge, and detailed specifications must accompany each bid.

Bridge Construction.—Proposals re-

ceived by Sholtz & Atkinson at office of D. D. and C. M. Rogers, engineers, 447 N. Bench St., Daytona, Fla., until 1 P. M. July 11 for construction of four pile bent reinforced concrete bridge, 30 feet wide, about 1800 feet long, with draw center and abutments; also about 20,000 cubic yards fill for approach and rip-rap for same; all materials furnished contractor. Plans can be seen and specifications and blank form procured at office of engineers; certified check 3 per cent. amount of proposal.

Brushes.—Brannon & Rogers, 302½ Main St., Houston, Tex., want prices from manufacturers of paint brushes.

Building Materials.—Methodist Episcopal Church South, Rev. R. A. Waltrip, pastor, wants prices on brick, art-glass windows and lumber.

Building Decoration and Furnishing.—Masonic Building Co., L. K. Richards, secretary, Clarksburg, W. Va., wants bids on interior decoration and furnishing for new temple.

Building Materials.—L. H. Levy, 600 Broadway, St. Louis, Mo., wants prices on tile roofing, art glass, electric fixtures, screens, hardwood floors and electric wiring.

Building Materials.—G. M. McDonough, Kissimmee, Fla., wants to correspond with manufacturers of building materials with view to representation.

Building Materials.—C. H. Page & Bro., 717 Union National Bank Bldg., Houston, Tex., want catalogues and samples from manufacturers of building materials.

Building Materials.—J. A. Lamb, Palmetto, Fla., wants prices on brick, lumber, metal ceiling, roofing, lighting fixtures, plumbing, plate glass, hardware, etc.

Building Materials.—W. D. Coggeshall, Darlington, S. C., wants prices on glass fronts, mill work, metal ceilings, galvanized roofing, etc.

Building Materials.—Celestine Real Estate Building & Construction Co., 802 Chestnut St., St. Louis, Mo., wants samples of dwelling novelties.

Canal Construction.—T. H. Jackson, Major, Engineers, United States Engineer office, Dallas, Tex., receives bids until noon July 20 for dredging in section "b" Sabine-Neches Canal; information on application.

Canning Supplies, etc.—Dixie Canner Co., Little Rock, Ark., wants to correspond with manufacturers of canning factory supplies and accessories, especially circular capping steels, tipping coppers, can tongs, labels, etc.

Cars.—Laurel Park Street Railway, Henderson, N. C., will want prices on electric cars. (See "Trolley Equipment.")

Clothes Dryers.—L. H. Levy, 600 Broadway, St. Louis, Mo., wants prices on clothes dryers.

Coke Ovens and By-products.—H. R. Wright, 920 Stephen Girard Bldg., Philadelphia, Pa., wants information on by-products of coke ovens; cost of ovens, what the by-products are, etc.

Concrete Machinery.—George W. Grown, West Palm Beach, Fla., wants prices on concrete machinery.

Concrete Mixers.—Improved Brick & Stone Co., Byhalla, Miss., wants prices on concrete mixers; hand and other power; send cuts.

Conveyors.—See "Rice-milling Machinery."

Cotton Waste.—Crozet Ice & Cold Storage Corporation, Crozet, Va., wants white and colored cotton waste; wants to correspond with manufacturers.

Crusher.—W. P. Hickerson, Jr., Manchester, Tenn., wants limestone crushing plant, 15 to 20 tons daily capacity, for farm purposes.

Distilling Equipment.—B. G. Klodt, C. E., Puerto Barrios, Guatemala, Central America (branch office), wants catalogues and prices on full equipment distilling apparatus.

Drainage.—Bids received August 12 at courthouse, Bay City, Tex., for construction of Matagorda County Drainage District No. 2, as per report of engineer of district in office of clerk of county court, a copy of which report, with plans, profiles and specifications, will be furnished prospective bidders by H. Black, engineer in charge, Markham, Tex.; bidders must furnish bond buyer; certified check 5 per cent. amount of contract price (same being \$234,980.13) must be deposited with chairman board of commissioners, A. M. Anderson; Sig Brown, secretary.

Drainage Construction.—O. H. M. Harrison, chairman drainage district No. 5, La Porte, Tex., receives bids until noon July 15 to construct drainage system, consisting

of 100 miles main ditch and laterals; bids to be submitted on work as whole or separately on any main ditch or lateral or other section; bids submitted on entire work should be made separately on each class of work, such as earth excavation of ditches and laterals, clearing of outlets and excavation of outlets; plans, specifications, etc., on file with N. G. Kolb, engineer, South Houston, Tex.; Dudley Shaw, secretary.

Dryer.—See "Grain Elevator."

Electric Fixtures.—Trustees African Methodist Episcopal Church, Rev. J. A. Jones in charge, Shelbyville, Tenn., wants prices on electrical fixtures for \$18,000 dormitory.

Electric-light Plant.—See "Water-works, Electric-light Plant and Sewers."

Electric-light Plant and Water-works.—City of Tuckerman, Ark., wants bids on construction of electric-light plant and water-works; E. V. Holt, chairman.

Electric-light Plant.—See "Water-works and Electric-light Plant."

Electric-light Plant.—F. B. Bugbee, Hastings, Fla., may be addressed relative to construction of \$10,000 electric-light plant.

Electric-light Plant and Water-works Material.—City Commissioners of Kingfisher, Okla., receive bids until 7 P. M. July 10 for machinery and materials for constructing electric-light plant and extensions to water-works; plans and specifications on file in office of Benham Engineering Co., 812 American National Bank Bldg., Oklahoma City, Okla.

Electrical Machinery, etc.—Black Mountain Coal Co., H. E. Bullock, P. A., Pineville, Ky., wants electric generator from 125 to 200 kilowatts, 250 volts, belted or direct-current type; if belted, an engine for operating generator; also one or two 150-horse-power return-tubular boilers and one 75-horse-power direct-current 220-volt motor.

Electric Signs.—T. M. Goodrum, Newnan, Ga., wants information on electric signs; wants to buy for city.

Electric Plant.—Americus Power Co., Frank Lanier, president, Americus, Ga., will open bids July 16 for material and machinery, supplies, etc., for electric-light plant; 400 horse-power steam; J. B. McCrary Company, Atlanta, Ga., engineer in charge.

Engine.—Henry Eberman, manager Eberman Water-works Co., Morgantown, Ky., wants second-hand 50-horse-power center-crank (or end crank) self-contained automatic steam engine with belt wheel 9-inch face by 60 inches diameter or larger; good order. State price.

Engineers.—Sealed bids, addressed to chairman of committee, received until 5.30 P. M. July 8 for making surveys and mapping for a complete block book of city of Greenville, S. C., in accordance with specifications adopted; bid accompanied by certified check for \$50; specifications at office of City Engineer, or will be mailed upon application to him; Chas. F. Hard, chairman; C. P. Ballenger, City Engineer.

Excelsior Machinery.—S. R. Biggs Drug Co., Williamston, N. C., wants information and prices on equipment for excelsior plant.

Floor Lights.—J. W. Rowe, 315 Slaughter Bldg., Dallas, Tex., wants prices on 3-5x10-foot interior floor lights.

Forks and Shovels.—B. Jordan, proprietor Monticello Variety Works, Monticello, Ga., wants prices on and cuts of hay forks and long handle shovels; large and small quantities; prices wanted on shovels without handles.

Farming Machinery.—J. S. Wilson, Bailey, N. C., wants prices on well pumps, corn-cleaning machinery, ball-bearing vehicles, elder mills, sand brick, well-drilling machines, woodworking machinery, emery-grinding equipment and other farming machinery.

Filter Plant.—City of Lenoir, N. C., is asking bids on filter plant; J. L. Cottrell, superintendent at Water Department.

Filter Plant.—Sealed proposals for filter plant received by Town Council, Culpeper, Va., on or before noon July 12 for furnishing all labor and materials for construction of filtration plant capable of delivering 1,000,000 gallons per day of 24 hours, including brick filter-house, filters, chemical feed devices and all pipe work. For further information address E. E. Johnson, City Attorney.

Gas Engine.—See "Water-works Supplies."

Gas Generator.—Henry S. Spaulding, Pine Bluff, N. C., wants 75-light acetylene-gas generator.

Gas Logs.—L. H. Levy, 600 Broadway, St. Louis, Mo., wants prices on gas logs.

Gasoline Engines.—Reversible Metal Shingle & Manufacturing Co., B. H. Hale,

president, Halifax, N. C., wants prices on gasoline engines.

Ginning Machinery.—Farmers' Cotton Oil Co. (William Bailey to be addressed), Lousburg, N. C., will need ginning outfit.

Grain Elevator.—Planters' Manufacturing Co., Clarksdale, Miss., wants to correspond with manufacturers and installers of grain elevator and dryer machinery. Address W. P. Holland.

Heating Plant.—M. H. Smith, Smith Shirt Co., Washington, N. C., wants prices on heating plant for 125x50-foot room, with 10-foot pitch; brick building.

Heating Plant.—G. H. McCauley, Fayetteville, Ark., wants prices on heating (force blast) plant for \$37,000 building.

Heating Plant.—Trustees African Methodist Episcopal Church, Rev. J. A. Jones in charge, Shelbyville, Tenn., wants prices on heating equipment for \$18,000 dormitory.

Hoisting Machinery.—George W. Brown, West Palm Beach, Fla., wants prices on builders' hoist.

Jars.—J. F. Slinger, Adams, Tenn., wants addresses of potteries or glass works relative to placing order for manufacture of strong, thick clay or glass 10-gallon jars; six jars; wants prices and freight rates; has fittings; will furnish dimensions.

Lighting Fixtures.—J. W. Rowe, 315 Slaughter Bldg., Dallas, Tex., wants prices on lighting fixtures for \$25,000 store.

Laundry Machinery.—E. C. Matthews, foot of West Ave. B, Norfolk, Va., wants addresses of manufacturers of laundry machinery for small plant.

Lead.—Brannon & Rogers, 302½ Main St., Houston, Tex., want prices from manufacturers of white lead.

Leather Cushions.—Lakeland Manufacturing Co., Lakeland, Fla., wants prices on leather cushions for davenports, etc.

Levee Construction.—Fidelity Land Co., 705 Gravier St., St. Charles Hotel, New Orleans, La., receives bids until noon July 5 to construct protection levee and drainage canal on Mary Plantation in Plaquemine parish; length 15,800 feet, containing 100,000 cubic yards; deposit \$100; cash or certified check to amount of deposit to accompany each proposal; other information as to location, character of work, etc., obtainable at office of company.

Machine Tools.—Carolina Machinery Co., William F. Decker, president, Asheville, N. C., wants prices on 48-inch gap lathe, bolt cutter, gear cutter and power saw.

Oil-mill Machinery.—Farmers' Cotton Oil Co. (William Bailey to be addressed), Lousburg, N. C., will need complete equipment for oil mill.

Oil-mill Machinery.—Planters Manufacturing Co., Clarksdale, Miss., wants prices on cottonseed-oil refinery to manufacture cooking oil. Address W. P. Holland.

Paper-bottle Machinery.—F. E. Hatcher, Richmond, Va., wants addresses of manufacturers of machinery to make paper milk bottles.

Paving.—Commissioners District of Columbia, Washington, D. C., receive bids until 2 P. M. July 12 to pave various streets and avenues with sheet asphalt and bituminous macadam during 1913; proposal forms, specifications and necessary information may be obtained from chief clerk, Engineer Department, Room 427 District Bldg.

Paving, etc.—Charles R. Kennedy, Comptroller, New Orleans, La., receives bids until 11 A. M. July 8 to construct subsurface drains, culverts, curbs, gutter bottoms and sidewalk pavements on Jackson Ave. from Prytanis to Annunciation Sts.; also for same work on Jackson Ave. from Annunciation to Tchoupitoulas Sts., and to pave with pitch lake asphalt Jackson Ave. from Annunciation to Tchoupitoulas St.; separate bids to be submitted; plans and specifications on file with City Engineer; deposits \$300, \$300 and \$200, respectively on each section; City Engineer will furnish bidders with blank proposal forms.

Paving.—F. J. Von Zuben, acting City Engineer, Fort Worth, Tex., receives bids until 9 A. M. July 9 to pave Galveston Ave. from Railroad to Terrell Ave., containing 9300 square yards; material to be rock asphalt, vitrified brick or Bermudez Lake or Trinidad pitch sheet asphalt; also until same date to pave 25th St. from North Main St. to Azle Rd., and along Azle Rd. to city limits, containing 43,900 square yards; material to be bitulithic, bituminous concrete, vitrified brick or granitoid; forms of proposal and specifications on file with City Engineer; certified check \$1000; J. H. Maddox, Commissioner Streets and Public Property.

Paving.—Commissioners District of Columbia, Washington, D. C., receive bids until

2 P. M. July 12 to lay asphalt block pavements; proposal forms, specifications and information may be obtained from Chief Clerk Engineer Department, 427 District Bldg.

Paving.—Proposals for constructing cement sidewalks, brick street crossings and appurtenances received by undersigned up to 8 P. M. July 19 at Meridian, Miss.; work consists of about 20,000 square yards cement walks, 1700 square yards brick street crossings and 10,000 cubic yards grading; plans and specifications at office of engineer; certified check not less than 5 per cent. of amount bid; C. W. O'Leary, City Clerk.

Paving.—Bids received until 8 P. M. July 5, then opened, at office of Mayor, Athens, Ala., for grading, furnishing material and constructing 8000 square yards cement sidewalk, 725 square yards vitrified brick crosswalk and 650 square yards crushed limestone screening sidewalk; certified check \$300; Lifford Cole, City Clerk.

Pipe, etc.—Proposals received at Bureau of Supplies and Accounts, Navy Department, Washington, D. C., until 10 A. M. July 2, and opened immediately thereafter, to furnish at Naval Academy, Annapolis, Md., a quantity of wrought-iron pipe and copper conductor. Applications for proposals should refer to schedule 4666. Blank proposals furnished upon application to navy pay office, Baltimore, Md., or to bureau. T. J. Cowie, Paymaster-General, U. S. N.

Pipe.—City of Sweetwater, Tex., receives bids, to be opened July 10, for purchase of about 15,870 feet 6-inch, 9000 feet 8-inch, 650 feet 10-inch, 7720 feet 12-inch, 750 feet 15-inch and 450 feet 18-inch salt-glazed vitrified pipe; bidders to furnish specifications and blueprint describing items; bids to be addressed to L. S. Polk, City Secretary, and contain statements on delivered price on each item, time of delivery, terms, weight of items, specifications and explanations; duplicate bids and specifications; bids enclosed in separate envelope marked "Bid on sewer pipe to be opened July 10, 1912."

Pipe, etc.—Proposals received at Bureau of Supplies and Accounts, Navy Department, Washington, D. C., until 10 A. M. July 2, and opened immediately thereafter, to furnish at Navy-yard, Norfolk, Va., a quantity of lead pipe. Applications for proposals should refer to schedule 4672. Blank proposals furnished upon application to navy pay office, Norfolk, Va., or to bureau. T. J. Cowie, Paymaster-General, U. S. N.

Plumbing.—G. H. McCauley, Fayetteville, Ark., wants prices on plumbing for \$37,000 building.

Pumps.—See "Farming Machinery."

Rails, etc.—Proposals received at Bureau of Supplies and Accounts, Navy Department, Washington, D. C., until 10 A. M. July 2, and opened immediately thereafter, to furnish at Navy-yard, Washington, D. C., etc., a quantity of acid hose, steel rails, etc., railroad ties and brass tubes. Applications for proposals furnished upon application to bureau. T. J. Cowie, Paymaster-General, U. S. N.

Rice-milling Machinery.—Standard Milling Co., Houston, Tex., wants three hexagon reels; 40-inch by 14-foot double conveyor; one hexagon reel; 40-inch by 10-foot double conveyor.

Road Construction.—Lee County Commissioners, Opelika, Ala., receive bids until noon July 29 to grade and surface with top soil six miles of Opelika and Beulah Rd.; expenditure \$8000; certified check \$600; profile and specifications on file with Probate Judge, Opelika; W. S. Keller, State Highway Engineer, Montgomery, Ala.

Road Construction.—H. R. Wallace, County Auditor, Sherman, Tex., receives bids until 10.30 A. M. July 12 to construct system of highway, including bridges, culverts, etc.; plans and specifications on file with County Commissioners, and may be seen on application; information on request; copies of plans and specifications furnished by County Auditor on deposit of \$15.

Road Construction.—Leon County Commissioners, Centerville, Tex., receive bids until noon July 16 to construct roads in Marques Road District No. 4; \$30,000 bond issue voted; plans and specifications on file with W. D. Lacey, County Judge; copies of plans and specifications furnished on request; certified check \$500. Address bids to W. D. Lacey, County Judge; for further information address F. A. Gayle, Marquez, Tex.

Road Construction.—Lawrence County Commissioners, Moulton, Ala., receive bids until July 10 to construct 1½ miles water-bound macadam road between Hillsboro and Moulton. Address M. S. Bingham, Hillsboro, Ala.

Road Construction.—Blount County Commissioners, Oneonta, Ala., receive bids

with noon July 11 to grade, drain and surface with chert one mile State-aid road; plans and specifications on file with Judge of Probate; expenditure \$4000; W. S. Keller, state Highway Engineer, Montgomery, Ala.

Road Construction.—Baltimore County Highways Commission, E. Stanton Bosley, secretary, Towson, Md., receives bids until noon July 18 to improve section of Garrison Ave., third district, about 700 feet, and improving section of North Ave., Mt. Washington, third district, with combination curb and gutter and macadam, about 700 feet; certified check \$300; plans and specifications on file with Highway Commission; William G. Snow, roads engineer.

Road Construction.—W. A. Brown, County Road Engineer, Princeton, W. Va., receives bids until noon August 13 to grade and construct road in Rock district, leading from top of mountain down Simmons Creek to point at mouth of Simmons Creek to intersection with Bluestone Rd., distance of three miles, 1060 feet; plans and specifications on file with clerk of Mercer County Court at Princeton, at office of Mr. Brown and residence of E. W. Freeman, Bramwell, W. Va.

Road Construction.—Tazewell County Supervisors, D. B. Daniels, chairman, Tazewell, Va., receive bids until noon July 9 to macadamize 10.70 miles road; plans and specifications on file with County Engineer; certified check \$500.

Road Machinery.—Onell Engineering Co., 1500 Praetorian Bldg., Dallas, Tex., wants prices on elevating grader, dump and spreader wagons and gasoline or oil engines for roller and tractors.

Road Machinery.—T. J. Ryan, 1330 Lexington Ave., New York, wants to purchase eight-ton road roller.

Screens.—See "Building Materials."

Sewer Materials.—City of Chase City, Va., W. H. Jeffreys, Mayor, opens bids 8 P. M. July 8 on material for previously-noted sewer construction; six miles sewer pipe; J. B. McCrary, engineer, Third National Bank Bldg., Atlanta, Ga.

Sewers.—See "Water-works, Electric-light Plant and Sewers."

Sewer Construction.—Commissioners Sewer District No. 1, H. W. Patrick, secretary, Russellville, Ark., receive bids until 4 P. M. July 18 to construct sewer system; plans and specifications with Commissioner H. C. Nugent, Russellville, and with E. A. Kingsley, engineer, Markham and Center Sts., Little Rock, Ark.; certified check \$500.

Sewer Construction.—Commissioners District of Columbia, Washington, D. C., receive bids until 2 P. M. July 8 to construct section 3 of Rock Creek main intercepting sewer; specifications, proposal forms and necessary information obtainable from chief clerk, Engineer Department, Room 427 District Bldg.

Sewer Construction.—Sewerage and Water Board, F. S. Shields, secretary, 508 City Hall Annex, New Orleans, La., receives bids until noon August 24 to construct reinforced concrete siphon under New Basin navigation canal at Broad St., contract 45-D; plans, specifications and general information furnished on application to board; certified check \$1000; George G. Earl, general superintendent.

Shingles.—Texas Farmers' Supply Co., Houston, Tex., wants prices on composition shingles with fireproof coating; also metal shingles.

Shuttle-block Machinery, etc.—J. P. Carruth & Sons, Auburn, Miss., want to correspond with manufacturers or dealers in machinery to manufacture dogwood timber into shuttle blocks; small capacity.

Slate.—Texas Farmers' Supply Co., Houston, Tex., wants prices on slate; car lots.

Stone.—G. H. McCauley, Fayetteville, Ark., wants prices on Carthage or Bedford stone.

Steel Bridge.—Proposals received by E. W. Patton, chairman Board of Commissioners, Buncombe county, at his office, Asheville, N. C., until 12 M. August 6 for construction of steel bridge across Big Ivy Creek; single span of 90 feet; approaches of 20 and 34 feet; bids for completed job; contractor to furnish labor and supplies except lumber for flooring; for plans and further information address J. C. M. Valentine, County Engineer, Asheville.

Structural Steel.—Mississippi River Commission, Chas. L. Potter, Lieutenant-Colonel, Corps of Engineers, United States Army, secretary, 1307 Liggett Bldg., St. Louis, Mo., receives sealed proposals, in triplicate, until 12 noon July 17 for furnishing and delivering fabricated structural steel framing for shop building 70x100 feet, with

truss roof; specifications, etc., furnished on application.

Solder.—Brannon & Rogers, 202½ Main St., Houston, Tex., want prices on tinner's solder.

Trolley Equipment.—Laurel Park Street Railway, Henderson, N. C., will be in market for electric cars and trolley material; probably 2½-mile line.

Wallpaper.—Brannon & Rogers, 202½ Main St., Houston, Tex., want prices from manufacturers of wallpaper.

Water-works.—See "Electric-light Plant and Water-works."

Water-works and Electric-light Plant.—City of Coolidge (McCreary county), Ky., wants to correspond with manufacturers or dealers in materials used in constructing water-works and electric-light plants; water-works to include standpipe and pumping station; F. D. Sampson, Circuit Judge.

Water-works, Electric-light Plant and Sewers.—Proposals received by Mayor and Board of Aldermen, Smithfield, N. C., until 2 P. M. July 31 for building water-works, electric-light plant and sewerage system; water-works and electric-light system combined in one power plant; work will embrace fireproof building, return tubular boilers, generator and engine; lighting system, steam and electric pumps, mechanical filter, coagulating and clear-water basins,

pole lines, and about 3½ miles of 6 and 8-inch cast-iron water-pipe laying, with hydrants and valves; sewerage will consist of about 4 miles pipe sewers 8 inches to 12 inches diameter, and appurtenances; plans and specifications on file at office of Mayor and at office of engineer at Charlotte, N. C.; copies of specifications, form of proposal, etc., obtainable from engineer; full set blueprints furnished by engineer on payment of \$5; single prints, 25 cents each; engineer, Gilbert C. White; certified check for 5 per cent. of bid; James A. Wellons, Mayor.

Water-works.—See "Electric-light Plant and Water-works Materials."

Water-works Supplies.—J. E. Davis, Caddo, Okla., wants prices on 170 tons 6-inch class "B" and 60 tons class "A" pipe, triplex pump and 30-horse-power gas engine.

Well-drilling Machinery.—See "Farming Machinery."

Well Drilling and Equipment.—Cross Lake Oil & Gas Co., John W. A. Jeter, secretary, Box 264, Shreveport, La., wants prices on well drilling by contract, etc.; also prices on equipment.

Wheels.—Henderson Manufacturing Co., Henderson, N. C., wants addresses of manufacturers of wheels for wheelbarrows.

Woodworking Machinery.—See "Shuttle-block Machinery, etc."

Woodworking Machinery.—See "Farming Machinery."

INDUSTRIAL NEWS OF INTEREST

Sales Agents for Mill Equipment.

L. & D. P. Smith, sales agents, Strickland Bldg., Valdosta, Ga., represent manufacturers of equipment and supplies used by saw-mill and logging roads; also all kinds of building material. This firm is now in a position to add several more lines of equipment. Its territory is South Georgia and all of Florida.

W. D. Collins Safe Co.'s Contract.

The First State Bank of Corpus Christi, Texas, has awarded the contract for interior room alterations, marble and bronze fixtures, bronze rails, terrazzo floors, etc., to the W. D. Collins Safe Co., 511 Main St., Denison, Tex. Another important contract awarded to this company is for the inside trim, marble fixtures, wainscoting and steel vault doors for the Hall County National Bank of Memphis, Tex.

W. E. Hoshall & Co.

A wholesale hardware and lumber business, with headquarters at 1318 Carter Bldg., Houston, Tex., has been established by W. E. Hoshall & Co. This company is winding up the affairs of Hoshall & McDonald Bros. of Eola, La., and all correspondence with that firm should be addressed to the Houston office. W. E. Hoshall & Co. will continue to take care of the business and patronage of Hoshall & McDonald Bros.

The Atlantic Engineering Co.

J. W. Howard of the Howard Engineering Co. and former city engineer of Savannah, Ga., and Lawrence Manning of the Manning-Hughes Company of Charleston, S. C., have organized the Atlantic Engineering Co., with offices in the Real Estate Bank Bldg. at Savannah and at Charleston. This company will devote its energies to land drainage, including the reclamation of wet and overflowed lands. It is stated that they are well equipped to handle projects along these lines, and will finance good land propositions.

Allen Engineering Co.'s Contract.

Among the contracts recently received by the Allen Engineering Co. of Memphis, Tenn., is that for two 250 K. V. A. Terry steam turbine-driven generator sets, complete, with condensing apparatus, for the city of Athens, Ala. The Allen Engineering Co. manufactures transmission and conveying machinery, oil-mill machinery and power-plant equipment, and is engineer for machinery installations.

Virginia Bridge Co. of Texas.

Among the important contracts recently secured by the Virginia Bridge Co. of Texas, Dallas, is one from the Texas & Pacific Railway. This is for two 125-foot truss spans and two 60-foot plate girder spans. C. H. Chamberlain, chief engineer for the Texas & Pacific Railway, ordered this material. Another contract which has been closed by the company is with the San Antonio & Aransas Pass Railway for furnishing and erecting a foot bridge over their yards at Yoakum, Tex. This bridge has a total length of 300 feet. R. Hortensine is the contracting

engineer for the Virginia Bridge Co. at Dallas. The company manufactures steel bridges, girders, turntables and carries on structural work.

Alabama Cement Company Begins Operations.

The Alabama Portland Cement & Lime Co. of Demopolis, Ala., has completed the overhauling and remodeling of its plant, and will at once commence the manufacture of the "Red Diamond" brand of Portland cement at the rate of about 1000 barrels per day. This company also manufactures the "Red Diamond" brand of lime fertilizer for use on acid soils. J. D. Groesbeck is manager for the company.

Phosphate Land for Sale.

A tract of 300 acres of phosphate land in Columbia county, Fla., is offered for sale in our advertising columns. A railroad runs through the tract and it is immediately surrounded by phosphate plants. It is one mile from Fort White. It has been prospected thoroughly, and the rock found to be rich in phosphate. Full information regarding this land may be obtained by addressing Charles Crosland, Bennettsville, S. C.

Opens a Branch Office in Houston.

In addition to its Austin, Tex., office, C. H. Page & Bro., architects, have opened up a branch office at 717 Union National Bank Bldg., Houston. These architects have done a large amount of designing in structural work in the South and Southwest, including State buildings, railroad buildings, school buildings, courthouses, lodges, bank buildings, warehouses, store buildings, churches and residences. They make a specialty of school buildings. They will receive manufacturers' samples at both the Houston and Austin office.

Agents for the Cinch Expansion Bolt

The Cinch Expansion Bolt Engineering Co. of 401 Broome St., New York, has appointed the Strong, Carlisle & Hammond Co. as its exclusive agents for Cleveland, Philadelphia, Boston, Pittsburgh, Detroit and Chicago. Complete stocks, including all sizes of Cinch expansion bolts, are to be carried at these points to accommodate the rapidly growing demand for these bolts. The Fairbanks Company of Albany, N. Y., and Douglas-Milligan, Ltd., Montreal, have also been appointed agents and will carry Cinch expansion bolts in stock.

Modern Fence Factory for Sale.

The Farmers' Fence Co., Bellefontaine, O., will be sold at that place on July 20, 1912, as announced in our advertising columns. The plant has a complete machinery and power equipment for turning out both woven wire fences and farm gates, and the buildings contain 20,000 square feet of floor surface. There are eight town lots and 2 17-100 acres of land in the property. Included in the machinery, there are five fence looms, eight motors, an electric-welding machine, etc. The town furnishes electric power to factories at a very low rate. Full informa-

tion will be furnished by addressing I. N. Zearing, Bellefontaine, O.

Modern Highway Engineering.

After 25 years of experience in engineering practice, the last 15 of which have been devoted to road and street building, Maj. W. W. Crosby has resigned as chief engineer of the Maryland State Roads Commission and has established offices at 532 N. Howard St., Baltimore. Over \$8,000,000 worth of road work has been done under his direction, including county roads, city street work, boulevards, bridges, etc. He is prepared to give expert advice on the chemical side of highway problems, and will also give particular consideration to problems arising in connection with the organization of departments or systems for the prosecution of highway construction and maintenance.

Successful Sale of the Lewis Publishing Co.

The sale of the properties of the Lewis Publishing Co. of University City, St. Louis, attracted a large attendance, and it is stated by the trustees, attorneys and representatives of the principal creditors that the sale has proven an exceedingly satisfactory one. J. E. Conant & Co., auctioneers, of Lowell, Mass., feel that it has been an unqualified success. The real estate, publication and 431 lots of mechanical equipment and other personal property were sold on the first day for over \$169,000, and on the second day the mechanical and personal property realized over \$56,000. The properties sold at a considerable advance over the appraised valuation placed upon them by the court.

Electric Equipment at Tallulah Falls

The electrical equipment supplied by the General Electric Co. of Schenectady, N. Y., to the Tallulah Falls hydro-electric development, as noted in our issue of June 6, includes the following outfits: Each of the turbines will be direct connected to a 10,000 K. V. A. three-phase 60-cycle water-wheel type generator. Direct-current excitation for the alternating generator units will be furnished by 100-kilowatt 250-volt exciter sets. The current will be generated at 6600 volts, and this voltage will be stepped up to 110,000 volts by the necessary number of 3333 K. V. A. transformers, for transmitting the current over high-tension lines to distant towns and cities. The switchboards, lightning arresters and substation equipments are being furnished by the General Electric Co. The location and present equipment of the principal substations are: At Lindale, six 1000 K. V. A. 110,000-volt transformers and switchboards; at Newnan, three similar equipments; at Cartersville, three similar equipments, and at Atlanta, nine 3333 K. V. A. 110,000-volt transformers and switchboards; at Gainesville, three 500 K. V. A. 110,000-volt transformers and switchboards. All of the substation transformers are of the outdoor type. The transmission lines are in duplicate and are carried on steel towers throughout. The main circuit is of 4/0 copper and the branch circuits are of 2/0 copper, all carried on suspension insulators. The total transmission system in process of construction extends over a distance of about 235 miles, the distance of Tallulah Falls from Atlanta being about 90 miles. The design and supervision of this development is under Charles O. Lenz, chief engineer of the Northern Contracting Co., 71 Broadway, New York city, and Atlanta, Ga.

Immense Generators for Hydro-Electric Development.

Thirty vertical water-wheel type alternating generators of immense size will be placed in the new hydro-electric power-house at Keokuk, Iowa. This power-house, when completed, will be 1750 feet long by 123 feet wide and 133 feet high above the foundations, and the plant will develop, with the entire installation, over 300,000 horse-power. This great concentration of energy is to furnish power for machinery, lighting and railroad transportation for towns and cities within a zone of 150 miles from Keokuk. This great development, which is being carried on by the Stone & Webster Corporation of Boston for the Mississippi River Power Co. of Keokuk, will include a concrete dam and locks at Keokuk. This dam is 4568 feet long, surmounted by a viaduct carrying a 20-foot roadway, and rises 50 feet above the average river bed. It contains 119 spillways, controlled by steel floodgates, each 30 feet wide by 11 feet high, and operated by electric hoist. The total over-all length of the dam, including approaches, is 9096 feet. The canal lock is 110 feet wide by 400 feet long, with a lift of 40 feet on the Iowa side of the river, and a drydock is built alongside of the lock. Each of the 15 turbines and alter-

nating generators will form an independent unit. Each wheel is mounted on a vertical shaft 25 inches in diameter and will have a normal capacity of 10,000 horse-power. The generators will be installed on top of the wheel pits directly over the turbines, and will be direct-connected to the vertical wheel shaft by forged steel flange coupling. Electrical apparatus for this equipment is being furnished by the General Electric Co. of Schenectady, N. Y. Besides the generators and exciters, 8 water-cooled 110,000-volt transformers will be installed for stepping up the voltage of the current to be distributed over the high tension transmission lines to distant points. These immense generators measure 32 feet in diameter, and the total weight of each machine is over 600,000 pounds. Twenty freight cars are required to transport one complete generator when dismantled. About 400 cars and 25 locomotives will be needed to haul the entire shipment of electrical apparatus for the first half of the installation. It is estimated that this Keokuk plant, when completed, will develop about three times the power now used for manufacturing purposes in the State of Iowa. St. Louis is 135 miles distant from Keokuk, and is the largest city to contract for power to be transmitted from this development. The street railway and electric-light companies of St. Louis have already contracted for 60,000 horse-power.

TRADE LITERATURE.

Cortright Metal Shingles.

The quality of durability as applied to metal shingles is impressed upon the reader in the last issue of Cortright Metal Shingle Advocate, Vol. 8, No. 6. It is stated that this matter of quality and durability is one of the most important questions in deciding the shingles that are to be used in a building. A number of illustrations of buildings in the State of Texas on which Cortright metal shingles have been used are shown.

Palmetto Bearing Metal.

The valuable properties of "Palmetto" metals and the advantages of their use by railroads, electric railways and other systems which are looking for long service and maximum efficiency from bearing metals, are stated in a pamphlet recently issued by the Palmetto Metal Co. of Chicago. It is stated that Palmetto metal can be poured as freely as water, that it does not shrink and has no dross. This booklet, which describes the various forms of Palmetto metal, will be sent on request.

Street Lighting Systems.

The series of lighting systems for outdoor lighting service in connection with the Westinghouse-Cooper Hewitt rectifiers are described in circular No. 1155, issued by the Westinghouse Electric & Manufacturing Co., East Pittsburgh, Pa. Several views of the system in actual operation are shown, together with designs of lamp posts, hangers, reflectors, etc. The rapid increase in the use of extensive electric-light systems for increasing the illumination of streets in many of the large cities makes this subject of particular and timely interest.

A New Tank Catalogue.

The William B. Scaife & Sons Co., 221 First Ave., Pittsburgh, and 25 Cortlandt St., New York, manufacturer of high-pressure tanks for air, gas and liquids; air and gas receivers, galvanized range boilers, steel barrels, storage tanks for oil and water, expansion tanks, gasoline tanks, etc., has issued catalogue No. 12. This catalogue practically covers the entire field of riveted, welded and brazed tanks for every purpose, including water and oil-storage tanks, hot-water boilers and the various other products of this company as mentioned. It also contains many useful tables and considerable data connected with the construction of steel tanks and cylinders.

Modern Boiler Tubes.

The story of the development and evolution of the modern boiler tube is contained in the booklet recently issued by the National Tube Co., Frick Bldg., Pittsburgh, Pa. A large part of the booklet is devoted to tests for boiler tubes and flues and specifications for lap-welded and seamless steel boiler tubes. An extensive discussion of steel versus iron tubes is also included. Interesting photographs showing the result of special tests to which these tubes are subjected are shown and statements of the severe hydrostatic tests from 500 to 1000 pounds pressure per square inch are given. In a folder recently issued by the company describing "Kevance" union it is stated that every individual union is tested under water with

100-pound compressed air pressure. The slightest leak shows in the form of a bubble, and unions showing such a defect are immediately rejected. These publications will be sent to interested persons on request.

The Use of Lime on Soils.

"Ground Limestone for Acid Soils" is the title of a booklet recently issued by the Alpha Portland Cement Co., Easton, Pa., which contains much useful information regarding the use of lime on soils. It is stated that any form of lime which is finely divided and can be thoroughly mixed with the soil will serve to correct the soil acidity, and that fine ground limestone will be the most economical form of lime to be used where it can be easily obtained. The results obtained from experiment stations, methods of applying limestone and other information is included in the booklet. A short reference to the use of "Alpha" Portland cement on the farm is included, together with a list of the uses to which Portland cement may be applied.

Ridgway Motor-Generator Sets.

The Ridgway direct-current generators and Ridgway motor-generator sets are illustrated and described in bulletins Nos. 25 and 26, respectively. The Ridgway generator is built under the Thompson-Ryan patents by the Ridgway Dynamo & Engine Co., Ridgway, Pa. The forms of construction and the advantages of its electrical equipment are stated in these bulletins, which will be sent on request to interested persons. The engines manufactured by this company are described in bulletins Nos. 19 to 23, inclusive, and the alternating-current generators in bulletin No. 24. This company has sales offices in the principal cities, including Washington, St. Louis, Kansas City, Dallas and New Orleans.

Hunt Industrial Cars.

The features of Hunt "Industrial" railways and cars, Hunt motor cars and other equipment built by the C. W. Hunt Company, West New Brighton, Staten Island, N. Y., for reducing production cost and increasing plant capacities, are described and illustrated in a folder issued by the company. This company's 40 years of experience in development and installation of industrial railways as applied to a wide range of industries enables its engineers to give valuable advice and recommendations regarding these installations. Catalogues issued by the company include a complete industrial railway catalogue; catalogues on noiseless conveyors, hoisting machinery, cable railways, automatic railways, electric locomotives and "Stevedore" manila rope.

Wales Adding Machine in the South.

A partial list of users of Wales Visible Adding and Listing Machines shows that the sales of these machines in Southern territory are phenomenal. This partial list includes a great number of representative banks, corporations and business houses of the South, and it is stated that from one to ten machines are used by each of them. The Adder Machine Co., Wilkes-Barre, Pa., manufacturer of these machines, has issued folders describing the many uses to which they are placed and various lines of business in which they are used. These include practically every commercial business, and over 300 banks are named in this partial list. The Gookin Bank & Office Equipment Co. of Atlanta, Ga., is the Southern distributor. These folders and other information will be sent to interested persons on request.

Oil-Burning Appliances.

The constant increase in use of oil fuel lends interest to the subject of the installation of oil-burning systems and the necessary equipment. The Liquefied Engineering & Construction Co., Phipps Power Bldg., Pittsburgh, Pa., makes complete installations of such systems, placing them in successful operation and giving a guarantee as to efficiency and economy. This company's apparatus is being used in glass and pottery plants, open-hearth steel furnaces, smelters, brick kilns, cement kilns, chemical works, foundries, garbage reduction plants, annealing furnaces, under stationary boilers, etc. The advantages of liquefied oil are stated in a booklet issued by the company, in which are also included illustrations and descriptions of the various burners, attachments, oil pumps, air compressors, tanks, etc., used in such installations.

Baldwin-Westinghouse Electric Locomotives.

The long experience of the Baldwin company as locomotive builders and that of the Westinghouse companies as manufacturers of railway motors, control equipment and brake

apparatus, have been combined in the manufacture of the Baldwin-Westinghouse electric locomotives. The trucks, frames and cabs are designed and constructed under the supervision of railway engineers of the Baldwin company, which has built locomotives for 80 years. These Baldwin-Westinghouse electric locomotives, which have already met with extensive use and have given

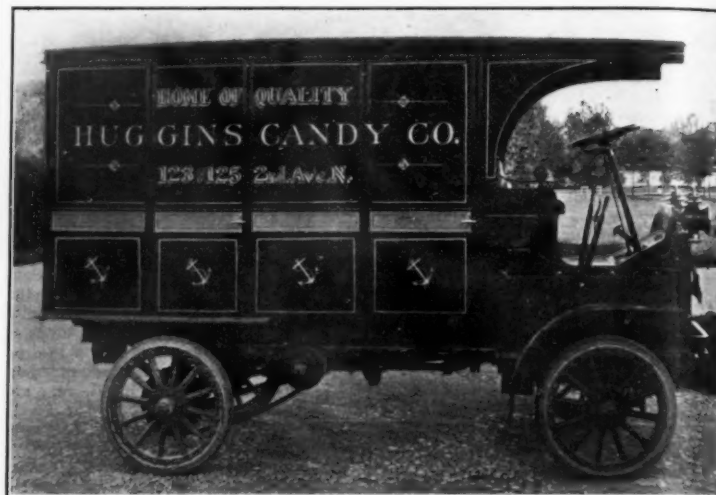
satisfactory results, are illustrated and described in a booklet recently issued as Circular 1516 by the railway lighting department of the Westinghouse Electric & Manufacturing Co., East Pittsburgh, Pa. This booklet contains many illustrations of these electric locomotives in actual use, also descriptions of each and the advantages obtained by their use.

MOTOR VEHICLES AND TRACTORS.

Gramm Commercial Motor Cars.

Two of the different sizes of Gramm motor trucks, manufactured by the Gramm Motor Truck Co., Lima, O., are shown in the accompanying illustrations. One of these commercial cars is operated by the Huggins Candy Co. of Nashville, Tenn., and the other is the 3-ton coal truck, of which the Enterprise Fuel Co. of Baltimore has four in use. The Huggins Candy Co.'s truck is used as a "drummer's buggy," and was purchased from Charles W. Callouette, the Nashville agent

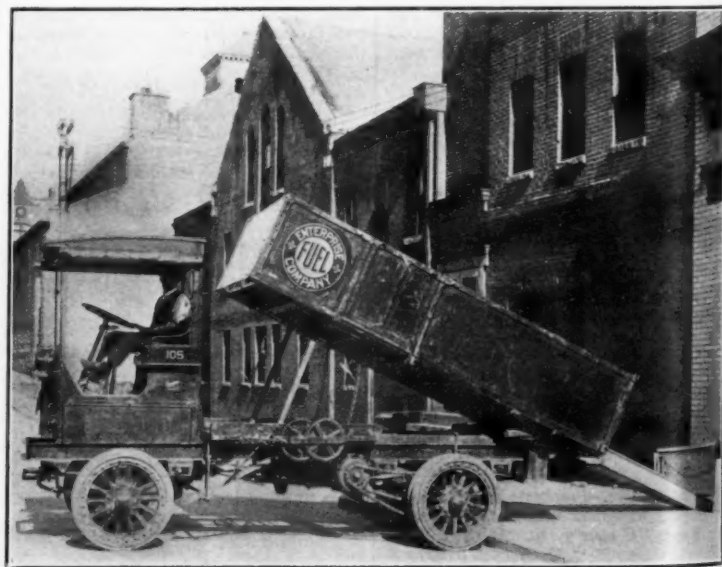
truck without any trouble and does not even take a helper with him. The expense of operating the truck is somewhat greater than that with the horse and buggy, but it covers much more territory and has more than doubled the business. The coal truck shown in the illustration has been tried from an economical and reliability standpoint by the Enterprise Fuel Co., Baltimore, with such satisfactory results that it has taken the agency for the Gramm truck for this territory and has purchased four for



GRAMM DELIVERY FOR WHOLESALE STORE.

for Gramm trucks. This progressive firm conceived the idea of starting a salesman out from its wholesale store with 2500 pounds of candy, which he delivers at the same time that he makes the sales, as he travels over the territory within a radius of 75 miles from Nashville. This truck has been in service for several months, and the Huggins Candy Co. is more than pleased with the results obtained from its use. Before putting on this truck, the salesman was making only 25 miles a day with a horse and buggy,

its own use in delivering coal in Baltimore and the suburbs. The body is made of wood and metal and the hoisting gear is similar to that on its horse-drawn wagons. The body is hoisted by mechanism operated by hand from the front end, pivoting at the rear, so that it is easily placed in position for unloading coal. The construction of Gramm trucks in general is similar for the four different sizes. It is made in 1, 2, 3 and 5-ton capacities. All models have four-cylinder, four-cycle motors, selective trans-



ENTERPRISE FUEL CO.'S GRAMM TRUCK.

and only took orders for the candy, but now he is covering three times the mileage, has more than doubled his business and completes the work by delivering the candy as he goes along. Another advantage derived from this truck is the advertisement and prestige which it gives. Everyone along this route knows the "candy automobile," and the merchants rely upon its arrival to purchase their supplies. This salesman, while not an experienced driver, has managed the

mission, double chain drive, and the Gramm type of multiple disc clutch. The magneto is direct driven by enclosed gears and all wire is carried in protective tubes. The motors are water-cooled, and in all, except the one-ton truck, a direct driven centrifugal pump is used to circulate the cooling water. The crank shafts are of special alloy nickel steel. The crank case is of high-grade aluminum alloy and is cast in two sections. The lubrication is by splash sys-

tem to all bearings, in addition to which a gear pump furnishes a direct supply. Timken bearings are used throughout the entire transmission, and all wheels run upon Timken bearings.

"Little Giant" Commercial Cars.

The details of construction, the operation and points of advantage claimed for the Little Giant commercial car are stated in booklet No. 115, recently published by the Chicago Pneumatic Tool Co., Fisher Bldg., Chicago, and 50 Church St., New York. The booklet is entitled "The Anatomy of the Little Giant." There are eight standard types of bodies from which the selection may be made by the purchaser. Any special style of body may be built to suit the purchaser at a slight extra cost. This car has been previously noted in our columns, and any additional information required may be obtained by addressing the company and obtaining its descriptive catalogues.

To Manufacture Gasoline Trucks.

The growing disposition among makers and users of motor trucks to realize that a full and complete equipment of power-driven vehicles for city and long-distance service justifies both gas and electric cars has for some time encouraged manufacturers of gasoline vehicles to add lines of electric to their output. Now the same recognition has turned the tables, and it is reported that the General Vehicle Co. of Long Island City, a leading manufacturer of electric trucks, has arranged to add a line of gasoline vehicles to its output. The General Vehicle Co. is understood to have acquired the rights to make Mercedes trucks in America. The Mercedes line is well known from the name that has been made for it through its pleasure and racing vehicles.

"Firestone" Tires and Rims.

The Firestone smooth-tread tire and the Firestone "Non-Skid" tread tires, made in three types to fit any standard rim, are described in a folder issued by the Firestone Tire & Rubber Co. of Akron, O., with agencies in the principal cities. It is stated that these tires are made of fine Para rubber and tested Sea Island cotton fabric, under skilled workmanship. Another folder issued by the company illustrates and describes "Firestone" quick-detachable demountable rims. It is stated that this Firestone rim has a continuous bearing support all around the wheel, which insures the tire seating properly and produces uniform wear. The Firestone rim is removed by simply loosening six retaining clamps so that quick changes can be made with the least effort and without complicated tools. Another advantage is that a tire can be changed with the rim on or off the wheel. The list of consumers' prices for "Firestone" pneumatic cases, inner tubes, rims and accessories and other printed matter may be obtained from the company or any of its agencies on request.

The "1913" Locomobile Car.

In announcing the models for the year 1913 the Locomobile Company of America, Bridgeport, Conn., calls attention to the three sizes in which its cars will be built. These are the long-stroke Six "45," developing 32 horse-power; the Little Six, developing over 40 horse-power; and the four-cylinder "30," developing 41 horse-power. The Six "45" will be equipped with touring, torpedo, roadster, limousine and landaulet bodies. The Little Six will include all of these with the addition of Berlinettes. The "30" four-cylinder cars will be in touring, torpedo and roadster models. It is stated in the booklet recently issued by this company that in addition to new body designs, which express unique ideas as well as the latest features of American and European practice, these cars will include many features contributive to the comfort and convenience of the passengers and driver. The specifications of these cars, descriptive matter, price-list and illustrations of each are included in the booklet, which will be sent to prospective purchasers on request.

Motor Truck Transportation Scientifically Considered.

In directing attention to the part taken by the International Motor Co. in the scientific treatment of motor-truck transportation, R. W. Hutchinson, Jr., of that company states that "in its early stages motor-truck transportation developed much less rapidly in this country than abroad; that is to say, motor trucks were used to a much greater extent there than here. This was largely due to the fact that many of the American trucks were built by manufacturers of pleasure cars, and were adaptations rather than specialized vehicles scientifically designed and constructed for load-carrying, while

others were made in only one or two sizes and were only for restricted service. Nor had motor-truck transportation been considered so scientifically in America. The International Motor Co., Broadway and 57th St., New York, was organized to supply the deficiency. It was organized to furnish sound engineering advice to users of transportation, and to put itself in a position to do this without prejudice, by undertaking to manufacture, in all sizes and styles, only trucks of proved investment value. The Saurer and Mack are the oldest trucks in Europe and this country, respectively, with unequalled records. The Hewitt is unique as a heavy load carrier. These trucks the International Motor Co. manufactures in a complete variety of sizes to meet every commercial requirement. To make the plan complete the strongest financial backing was given it, and provision was made to maintain the facilities which assure International owners everywhere of the same standard of "service" that the general offices and the factories provide. The immediate success of the enterprise, founded on these sound lines, was extraordinary. Examples of the encouragement that has been given to the undertaking are the recent purchase of 50 of its trucks by the Star Motor Delivery Co. of Chicago after a most thorough investigation covering the entire motor-truck field; the purchase of 25 of its trucks by the City Fuel Co. of Chicago after a similar investigation covering two years of experiments and tests; and the purchase of 30 of its trucks by the Porto Rico Motor Co. as initial equipment for its undertaking of furnishing transportation between the various parts of the island of Porto Rico. Already the Bavarian and Swiss Governments are using 100 of its trucks for mail-carrying in the Alps, and the French Government has for five years subsidized privately-owned Saurers as an auxiliary equipment for its War Department. Since the first of this year the Russian Government, after testing and experimenting with both European and American trucks, ordered 125 Saurers for the service of its War Department. There are approximately 7000 of the various sizes and styles of the International Motor Co.'s trucks in use in various parts of the world today."

The land and industrial department of the Southern Railway is circulating a handsomely illustrated booklet on the profits and possibilities of fruit growing in Virginia, the Carolinas, Georgia, Florida, Alabama, Mississippi, Tennessee and Kentucky.

The Lois Cotton Mills, Douglasville, Ga., will add 20 looms purchased from the Draper Company of Hopedale, Mass. The company has also erected a building addition.

Mr. C. T. Boykin has been elected secretary of the Chamber of Commerce of Bluefield, W. Va.

FINANCIAL NEWS

The MANUFACTURERS RECORD invites information about Southern financial matters, items of news about new institutions, dividends declared, securities to be issued, openings for new banks, and general discussions of financial subjects bearing upon Southern matters.

Review of the Baltimore Market.

Office MANUFACTURERS RECORD, Baltimore, Md., July 2.
Dullness prevailed in the Baltimore stock market during the past week, and the trading showed sales thus: United Railways common, 25 to 26; do. income bonds, 65 to 65½; do. funding 5s, 89½ to 89; do. notes, 101¼ to 103½; do. 4s, 84¼ to 85½; Consolidated Gas, Electric Light & Power preferred, 112 to 113; do. 4½s, 90; Consolidated Gas 4½s, 97½; Seaboard Air Line common, 25½ to 25; Seaboard 4s, 87½; do. stamped, 87¼ to 87; do. adjustment 5s, 81; Mt. Vernon-Woodberry Cotton Duck 5s, 74 to 74½; G.B.-S. Brewing common, 5; do. 4s, 51¼. Bank of Baltimore stock sold at 163½ to 165; Mechanics' Bank, 30; Baltimore

Trust, 162½ to 162; Maryland Casualty, 96 to 96½; American Bonding, 76½.

Other securities were traded in thus: City & Suburban (Baltimore) 5s, 104½; Houston Oil common, trust certificates, 15½ to 16, reacting to 15½; do. preferred do., 69½ to 70; do. dividend certificates, 86 to 87; Norfolk & Portsmouth Traction 5s, 89¾ to 89¾; Baltimore, Sparrows Point & Chesapeake 4½s, 97¼; Consolidation Coal, 101½ to 105; do. refunding 4½s, 92½; Fairmont & Clarksburg Traction 5s, 100¼ to 100¼; Virginia Midland 5th, 106; International & Great Northern Corporation, 56; Atlantic Coast Line of Connecticut, 273; Pennsylvania Water & Power common, 65; Norfolk Railway & Light 5s, 100 to 100½; Norfolk Street Railway 5s, 106; Alabama Consolidated Coal & Iron 5s, 73; Atlantic Coast Line convertible debenture 4s, 103½ to 103¾; Macon Railway & Light 5s, 100½; Baltimore City 3½s, 1930, 93½ to 93½; do. 4s, 1957, 100; do. do. 1951, 100; do. 3½s, 1945, 92¾; Maryland Electric 5s, 98½; Maryland 3½s, 1927, 95½; Monongahela Valley Traction preferred, 83; Washington, Baltimore & Annapolis 5s, 88½; Georgia Southern & Florida second preferred, 82½; Milwaukee Refunding 4½s, 95¼; Virginia new 3s, 85½; Chicago Railways 5s, 100½; Baltimore Electric preferred, 44¼; Potomac Valley 5s, 108.

SECURITIES AT BALTIMORE.

Last Quotations for the Week Ended July 2, 1912.

Railroad Stocks.	Par.	Bid.	Asked.
Atlantic Coast of Conn.	100	271	275
Georgia Sou. & Fla. 1st Pfd.	100	98	98
Georgia Sou. & Fla. 2d Pfd.	100	82½	83
Maryland & Pennsylvania	100	29½	35
Seaboard	100	24½	25¾
Second Pfd.	100	54½	55
United Rys. & Elec. Co.	50	25½	26
Bank Stocks.			
Bank of Baltimore	100	164	166
Citizens'	100	42	45
Druggists & Mechanics'	100	210	210
Exchange	100	161	161
Farmers & Merchants'	40	49½	51
First National	100	133	138
German	100	109	112
Maryland	20	20	20
Merchants'	100	181	182½
Howard	10	14	14
Marine	20	43	43
Mechanics'	100	29	30
Union	100	131	131
Western	20	37¼	38½
Trust, Fidelity and Casualty Stocks.			
Baltimore Trust	100	162	162½
Continental Trust	100	231	231
Fidelity & Deposit	50	151	151
Fidelity Trust	100	230	240
Maryland Trust	100	110½	115
Maryland Casualty	25	96½	97¼
Mortgage Guaranty Co.	100	125	125
Mercantile Trust & Deposit	50	153½	153½
Security Storage & Trust	100	180	180
Title Guarantee & Trust	100	160	160
Union Trust	50	63	63
Miscellaneous Stocks.			
Baltimore Electric Pfd.	40½	44	44
Con. Gas, Elec. Lt. & P. Com.	100	116	116
Con. Gas, Elec. Lt. & P. Pfd.	100	112½	113½
Consolidation Coal	100	105	106
G.B.-S. Brewing Co.	100	4½	5¼
Railroad Bonds.			
Atlantic Coast 1st 4s.	94½	95	95
Atlantic Coast Conv. Deben. 4s.	104	104½	104½
At. Coast (Conn.) 4s, Cfs., 5-20s.	92	93¼	93¼
Carolina Central 4s.	92½	92½	92½
Coal & Coke Railway 5s.	93	94½	94½
Coal & Iron Railway 5s.	101½	101½	101½
Col. & Green. 1st 6s.	100	105½	105½
Florida Central & Penins. 5s.	100	105	105
Georgia & Alabama 5s.	105½	105½	105½
Georgia & Alabama Ter. 5s.	104¼	104¼	104¼
Georgia, Car. & North. 1st 5s.	105½	106½	106½
Georgia South. & Fla. 1st 5s.	106½	107	107
Macon, Dublin & Savannah 5s.	100	100½	100½
Maryland & Pennsylvania 4s.	88½	91	91
Petersburg Class B 6s.	115½	115½	115½
New Orleans, M. & C. 5s.	89½	90	90
Potomac Valley 1st 5s.	106½	108	108
Savannah, Fla. & West. 5s.	125	125	125
Seaboard Air Line 4s.	87	87½	87½
Seaboard 4s, Stamped.	86½	87½	87½
Seaboard Adjustment 5s.	80½	81	81
Seaboard & Roanoke 5s.	105	106	106
Seaboard & Roanoke 6s.	105	105	105
Virginia Midland 4th 5s.	104	104	104
Virginia Midland 5th 5s.	106	106	106
Western Maryland 4s.	86½	87	87
Wilmington & Weldon 5s.	110½	110½	110½
Washington-Vandemere 4½s.	96	96	96
Street Railway Bonds.			
Atlanta Con. St. Ry. 5s.	105	105½	105½
Augusta Railway & Electric 5s.	100	101	101
Baltimore, Sp. Pt. & C. 4½s.	96½	97½	97½
Baltimore Traction 1st 5s.	106½	106½	106½
Baltimore Traction (N. B.) 5s.	110½	110½	110½
Charleston City Railway 5s.	103½	103½	103½
Charleston Con. Electric 5s.	95½	96½	96½
City & Suburban 5s (Balt.)	103½	105	105
City & Suburban 5s (Wash.)	103½	103½	103½
Fairmont & Clarksburg Trac. 5s.	105	105	105
Knoxville Traction 4s.	105	105	105
Lexington Railway 1st 5s.	94½	95½	95½
Macon Railway & Light 5s.	100½	100½	100½
Maryland Electric Railways 5s.	99	99½	99½
Norfolk & Portsmouth Traction 5s.	89½	89½	89½
Norfolk Railway & Light 5s.	100	100½	100½
Norfolk & Atlantic Ter. 5s.	93½	95	95

United Railways 1st 4s.	85¼	85½
United Railways Income 4s.	65	65½
United Railways Funding 5s.	88½	89¼
United Railways Notes.	103	103½
Virginia R. & P. 5s.	96	97¼

Miscellaneous Bonds.

Ala. Con. Coal & Iron 5s.	72	75
Baltimore Elec. 5s, Stp.	98½	98½
Consolidated Gas 4½s.	97½	97½
Con. Gas, Elec. Lt. & P. 4½s.	89½	90
Consolidation Coal Ref. 4½s.	92½	93
Consolidation Coal Ref. 5s.	93½	94
Fairmont Coal 1st 5s.	96½	97¼
G.B.-S. Brewing 1st 4s.	50½	52
G.B.-S. Brewing Inc. 5s.	14½	17
Mt. Vernon-Woodbury Cot. Duck 5s.	74½	74½

SOUTHERN COTTON-MILL STOCKS.

Quotations Furnished by William S. Glenn, Broker, Spartanburg, S. C., for Week Ending July 1.

	Bid.	Asked.
Abbeville Cotton Mills (S. C.)	75	75
Aiken Mfg. Co. (S. C.)	55	55
American Spinning Co. (S. C.)	162	162
Anderson Cotton Mills (S. C.)	45	45
Anderson Cot. Mills (S. C.) Pfd.	100	100
Arcadia Mills (S. C.)	90	90
Arkwright Cotton Mills (S. C.)	99	100
Belton Mills (S. C.)	100	110
Brandon Mills (S. C.)	90	90
Brogan Mills (S. C.)	60	60
Chiquola Mfg. Co. (S. C.)	160	160
Clifton Mfg. Co. (S. C.) Pfd.	97	97
Clinton Cotton Mills (S. C.)	120	120
Courtney Mfg. Co. (S. C.)	93	93
Dallas Mfg. Co. (Ala.)	99	99
D. E. Converse Co. (S. C.)	75	75
Drayton Mills (S. C.)	90	90
Eagle & Phenix Mills (Ga.)	106	106
Easley Cotton Mills (S. C.)	162	175
Enoree Mfg. Co. (S. C.)	25	63
Enoree Mfg. Co. (S. C.) Pfd.	85	100
Gaffney Mfg. Co. (S. C.)	72	75
Gainesville Cotton Mills (Ga.)	72	80
Glenwood Cotton Mills (S. C.)	130	140
Graniteville Mfg. Co. (S. C.)	135	145
Greenwood Cotton Mills (S. C.)	87	60
Grendel Mills (S. C.)	90	100
Hartsville Cotton Mill (S. C.)	160	160
Henrietta Mills (N. C.)	160	175
Inman Mills (S. C.)	100	100
King Mfg. Co. J. P. (Ga.)	80	86
Lancaster Cotton Mills (S. C.)	130	130
Lancaster Cot. Mills (S. C.) Pfd.	97	100
Lanley Mfg. Co. (S. C.)	75	75
Laurens Mills (S. C.)	135	135
Limestone Mills (S. C.)	155	160
Lockhart Mills (S. C.)	60	60
Lockhart Mills (S. C.) Pfd.	90	100
Loray Cotton Mills (N. C.) Pfd.	96	96
Marlboro Cotton Mills (S. C.)	75	75
Mills Mfg. Co. (S. C.)	90	102
Molokoh Mfg. Co. (S. C.)	90	90
Monahan Mills (S. C.)	110	110
Monarch Cotton Mills (S. C.)	110	110
Newberry Cotton Mills (S. C.)	125	120
Ninety-Six Cotton Mill (S. C.)	130	150
Norris Cotton Mills (S. C.)	115	115
Orr Cotton Mills (S. C.)	90	90
Pacolet Mfg. Co. (S. C.)	72	90
Pacolet Mfg. Co. (S. C.) Pfd.	72	100
Parker Common	30	30
Parker Pfd.	63	63
Taylor Mfg. Co. (S. C.)	120	120
Poe Mfg. Co. F. W. (S. C.)	110	115
Saxon Mills (S. C.)	120	120
Spartan Mills (S. C.)	110	125
Trion Mfg. Co. (Ga.)	130	130
Tucapau Mills (S. C.)	300	350
Union-Buffalo (S. C.) 1st Pfd.	00	00
Union-Buffalo (S. C.) 2d Pfd.	15	15
Victor Mfg. Co. (S. C.)	110	115
Warren Mfg. Co. (S. C.)	90	90
Warren Mfg. Co. (S. C.) Pfd.	100	105
Washington Mills (Va.)	28	28
Washington Mills (Va.) Pfd.	106	110
Whitney Mfg. Co. (S. C.)	110	110
Wicacasset Mills (N. C.)	135	135
Woodruff Cotton Mills (S. C.)	95	100
Woodside Cotton Mills (S. C.)	100	100
Watts Mills (S. C.)	70	70
Williamston Mills (S. C.)	120	125

FINANCIAL CORPORATIONS.

Ala., Brent.—The Brent Banking Co. is reported to have begun business; capital \$25,000. Among the stockholders are J. H. Avery, M. V. Faucett and G. J. Partridge.

Ark., Bradley.—The Bank of Bradley expects to begin business about August 15; capital \$12,500. J. H. Meek and others interested.

Fla., Inverness.—Official: Citizens' Bank chartered; capital \$25,000; C. E. Allen, president; G. H. Scofield, first vice-president; R. L. Turner, second vice-president; I. O. Fender, cashier; directors, C. E. Allen, G. H. Scofield, J. K. Kelley, T. H. Ramsey, C. P. Savary and I. O. Fender of Inverness, and W. R. Vincent of Odessa. Business is to begin about October 1.

Fla., Plant City.—Official: The First National Bank, capital \$50,000, expects to begin business between August 15 and September 1. Directors: W. B. Herring, A. Schneider, J. W. Alsobrook, J. A. Pearce and E. Chapman.

Fla., Tampa.—A new insurance company, capitalized at \$100,000, is reported being organized by T. L. Kennedy, J. T. Mahoney, LeRoy Cotter, Penn Dawson, Dawson & Thornton, Abe Maas and Claude Sims.

Ga., Alma.—The Farmers & Merchants' Bank, capital \$25,000, is reported incorporated by D. C. Rozier of New Lacey, J. H. Harvey, Jr., of Rockingham, and J. H. Carter of Alma.

Ga., Atlanta.—The Trust Company of the South, capital \$150,000, with privilege of increasing to \$2,000,000, is reported being organized; incorporators, John F. Cone, presi-

dent; A. M. Schoen and W. S. Lounsbury, vice-presidents; G. Megahed, cashier, and M. C. Johnson and W. H. Pickett, assistant cashiers.

Ga., Valdosta.—The Exchange Bank of Valdosta, capital \$100,000, is reported incorporated by A. C. Mizell, S. S. Davis, W. J. Taylor, J. D. Wisenbaker, J. H. Howard, G. A. Whitaker and E. D. Ferrell, all of Valdosta, and W. A. Sims of Ousley, S. B. Barfield of Hahira and W. G. McRee of Kinder Lou.

Ky., Flemingsburg.—The Farmers' Trust Co., capitalized at \$15,000, is reported organized and expects to begin business by September 16.

Mo., Fisk.—Official: The State Bank of Fisk incorporated; capital \$10,000. W. E. Meyers is president; W. J. Harrington, vice-president, and E. M. Ford, cashier; directors, W. E. Meyers, W. J. Harrington, Jas. K. Pool, Jas. Warren, Mrs. T. Jordan and E. H. Blankenship, all of Fisk, and N. B. Cook of Poplar Bluff, Mo.

Mo., St. Louis.—The Parkview Bank of St. Louis, capital \$25,000, expects to begin business about August 1 at the corner of Westgate Ave. and Delmar Blvd.

Okla., Forgan.—The First State Bank of Forgan, capital \$10,000, is reported incorporated by L. L. Stine of Woodward, J. W. Savage and R. A. Maple of Beaver, and W. P. Rogers and B. C. Lewis of Forgan.

Okla., Hennessy.—Official: The Farmers and Merchants' National Bank chartered; capital \$25,000; organizers, A. W. Westlake, F. E. Felt, C. K. Stettler and I. J. Cashion. This is a conversion of the Farmers and Merchants' Bank.

Okla., Oklahoma City.—Reported chartered: The Bohemian Building and Loan Association; capital \$25,000. Incorporators: Peter Rabetznek, Joseph F. Straka, Fred Pojeznik, Kudvik Vlacick, M. A. Swatek, John Pojeznik, John Marik, Aug. Janouch, J. L. Borecky and Joe Swatek.

S. C., Andrews.—The Bank of Andrews, capital \$20,000, is reported organized with directors thus: President, W. H. Andrews; vice-president and cashier, H. W. Fraser; assistant cashier to be selected later; solicitor, C. G. Barr; H. K. Ward, Geo. W. Camlin and J. W. Doar. Business is to begin about September 1.

S. C., Sumter.—The Palmetto Fire Insurance Co. is reported to have been granted a commission; capital \$25,000; petitioners, Perry Moses, Jr., I. C. Straus, Davis D. Mose, W. B. Wilson, Neill O'Donnell, H. J. Harby, C. G. Rowland, C. A. Lemon and R. I. Manning.

Tenn., Big Rock.—A new bank, which proposes to begin business on September 4, is reported organized with \$12,000 capital.

Tenn., Jackson.—Official: The Tennessee Mortgage & Investment Co. chartered; capital \$300,000. Incorporators: B. H. Blalock, president; A. M. Alexander, R. R. Sneed, Thos. McCarry and J. L. Crook. Business is to begin about September 1.

Tenn., Memphis.—The Citizens' Bank & Trust Co., recently chartered with \$250,000 capital, will, it is reported, begin business on July 1 at 82 Madison Ave.; directors, Joseph H. Creath, president; William Pritchard, vice-president; W. R. Cross, cashier, and R. B. Conners, assistant cashier and teller; directors, J. E. Stark, A. L. Lowenstein, William Pritchard, J. E. Coan, W. R. Cross, R. F. White, J. H. Creath, Leo Lesser, W. I. Moody, C. O. Scholder, Percy Finlay, W. L. Crenshaw, B. E. Moses, H. G. Duttlinger, J. M. Toohay, G. M. Tidwell, John Pritchard, Dr. Richmond McKinney and J. P. Jordan.

Tenn., Memphis.—The Insurance Loan & Trust Co. is reported to have made application for a charter; capital \$10,000; incorporators, H. A. Tatum, N. B. Forrest, R. H. Beard, George Arnold and H. P. Childress.

Tenn., Telford.—The Telford Banking Co. is reported organized with \$15,000 capital. Officers: W. A. Maloney, president; W. J. Propst, vice-president; C. M. Maloney, cashier.

Tex., Fort Worth.—The Guaranty Trust Co., capitalized at \$2,000,000, is reported being organized by Allen R. Sheffer, formerly secretary of the American Trust Co. of Houston, Tex.

Tex., Pilot Point.—Reported chartered: First State Bank of Pilot Point, capital \$20,000; incorporators, W. E. Atkins, J. M. Jones, F. A. Wright and others.

Tex., Waco.—Official: The Continental Trust Co. of Waco chartered; capital \$1,000,000. Directors: Sam R. Scott, president; G. R. Reynolds, J. C. Hunt, J. T. Smith, L. D. Ross, vice-presidents; S. P. Ross. Business is to begin in about 30 or 60 days.

Tex., McAdams.—A State bank capitalized at

\$10,000 is reported organized with directors thus: D. R. Le Master, president; A. O. Harvey, vice-president; Willis Harvey, cashier; R. L. Williams, M. Benson, J. Kastner, Walter Eschberger and H. Klemm.

Tex., San Antonio.—Official: The Alamo Trust Co. chartered and incorporated; capital \$100,000. W. E. Davis, president; Frank A. Winerich, Dr. W. M. Wolf and Dr. T. W. Robertson, vice-presidents; G. H. Albers, active vice-president and secretary; Hertzberg and Barrett, attorney and counsel; Rhodus and McAllister, real estate officers. Directors: W. E. Davis, Frank A. Winerich, J. B. Bernheim, W. W. McAllister, Alfred M. Stein, W. M. Wolf, M.D., Dr. T. W. Robertson, H. U. Rhodus, Dr. W. A. King, Max Goodman and G. H. Albers.

Va., Boone Mill.—The Farmers and Merchants' Bank, capital \$10,000, is reported organized by T. J. Nelson of Roanoke; L. A. Bowman is president, J. M. Emswiler vice-president, T. C. Bussey cashier; directors, M. T. Sink, G. C. Flora, L. M. Bussey, T. F. Montgomery, C. C. Jamison, Jack Garst, J. L. Sink, L. A. Bowman, J. M. Emswiler, C. J. Clingenpeel.

Va., Newport News.—Reported that charter is granted to Schmelz Bros., Bankers, Inc.; capital, \$50,000 to \$200,000. Henry Lane Schmelz of Hampton is president, Col. Robert Pegram Holt vice-president, and E. Stuart Blanton secretary and cashier.

Va., Orange.—The Shackelford-Warren Insurance Agency, capital \$1000 to \$10,000, is reported chartered. Henry C. Warren, president; H. G. Shackelford, secretary and treasurer; W. D. Dillard.

Va., Suffolk.—Official: American Bank of Suffolk incorporated; capital \$50,000; surplus \$2500; incorporators, B. L. Saunders, W. R. Frazier, G. G. Coulbourn, Geo. B. Walton, R. L. Brewer, Jr., and E. E. Jones. Business is to begin August 1. Press dispatches say that B. L. Saunders will be president, W. R. Frazier first vice-president, G. G. Coulbourn second vice-president, Ernest E. Jones secretary and cashier.

W. Va., Fairview.—Reported chartered: First National Bank of Fairview; capital \$30,000. P. B. Ames is president and W. H. Coontz cashier.

NEW SECURITIES.

Ala., Birmingham.—Reported that on August 12 an election will be held to vote on \$1,100,000 of Jefferson county courthouse, jail and hospital bonds.

Ala., Talladega.—July 8, it is reported, an election is to be held to vote on \$25,000 of 5 per cent. 30-year street-improvement bonds.

Ark., Sheridan.—Reported that bids are being received by Isaac McClellan, member of the School Board, for \$12,000 of 6 per cent. bonds of Sheridan special school district.

Ark., Tuckerman.—Official: E. V. Holt, chairman of Town Commissioners, is receiving bids for bonds for electric-light and water-works plant of Tuckerman improvement district.

Fla., Fort Meade.—Official: Bids will be received until noon July 25 for \$39,000 of 5 per cent. 15-30-year water-works and sewerage bonds; dated July 1, 1912. Address W. E. Arthur, secretary Board of Bond Trustees.

Fla., St. Andrews.—Official: Bids will be received until noon August 9 for \$30,000 of 5 per cent. 10-30-year municipal street improvement bonds voted August 1, 1912; denomination \$100; dated August 1, 1912. S. J. Gainer is Mayor.

Fla., Tampa.—August 20 an election is to be held to vote on \$1,700,000 of 5 per cent. 20-50-year sewerage bonds. D. B. McKay is Mayor and W. A. Johnson, City Clerk.

Ga., Blackshear.—Reported voted: \$23,000 of water-works, \$22,000 of sewerage and \$10,000 of electric-light bonds.

Ga., Cartersville.—Official: Bids will be received until 2 P. M. July 25 for \$50,000 of 5 per cent. electric-light, gas and water-works plant and school improvement bonds; denomination \$1000; dated July 1, 1912; maturity January 1, 1912. Address Board of Commissioners. C. W. Young is Mayor.

Ga., Cochran.—J. H. Hillsman & Co., Atlanta, are reported to have purchased the \$20,000 of 5 per cent. 30-year school bonds at a premium of \$20. J. E. Cook is City Clerk.

Ga., Conyers.—July 30, an election is to be held to vote on water-works and sewerage bonds.

Ga., Monticello.—Reported that the \$15,000 of 5 per cent. water and light bonds have been purchased at a premium of \$187.50 by the Farmers' National Bank of Monticello. J. B. Henderson is City Clerk.

Ga., Valdosta.—Official: July 26 an election is to be held to vote on \$100,000 of 5 per cent. city-improvement bonds; denomination \$1000; dated January 1, 1913. John T. Roberts is Mayor.

Ga., Valdosta.—The Valdosta Lighting Co. is reported authorized to issue \$365,000 of bonds and \$125,000 of stock.

Ga., Washington.—Reported voted: \$30,000 of street-improvement bonds.

Ky., Newport.—Reported that bids will be received by W. A. Elmer until noon July 15 for \$50,000 of 4 per cent. 30-year street-improvement bonds.

Ky., Somerset.—Steps are reported being taken to hold an election in November to vote on sewerage bonds.

La., New Orleans.—The Interstate Bank & Trust Co. is reported to have awarded the \$300,000 of Public Belt Railroad bonds at a premium of \$1015 and accrued interest.

La., Opelousas.—Official: An issue of \$15,000 of additional sewerage bonds are to be issued. W. J. Sandoz is secretary Board of Sewerage Commissioners of First Sewerage District.

Md., Annapolis.—Bids will be received until noon July 11 for \$1,000,000 of 4 per cent. Maryland State Loan of 1912, viz.: \$500,000 of Series A and \$500,000 of Series B. Phillips Lee Goldsborough is Governor; Emerson C. Harrington, Comptroller, and Murray Vandiver, Treasurer.

Md., Baltimore.—Bids will be received until noon July 15 for the following registered 4 per cent. city stock: \$300,000 Jones Falls improvement loan, redeemable March 1, 1961; \$310,000 of school-house loan, redeemable March 1, 1961; \$600,000 of dock improvement loan, redeemable March 1, 1961; \$120,000 of burnt district improvement loan, redeemable April 1, 1960; \$170,000 of conduit loan, redeemable December 1, 1958; \$600,000 of water loan, redeemable December 1, 1958; \$600,000 of paving loan, redeemable August 1, 1951; \$400,000 of Annex improvement loan, redeemable August 1, 1951; \$2,000,000 of new sewerage improvement loan, redeemable August 1, 1961. Richard Gwin is City Register.

Mo., Villa Heights (St. Louis).—Reported that a special election is to be held to vote on \$20,000 of water-works bonds. Jesse F. Osborne is Mayor.

Miss., Canton.—The Supervisors of Madison County will, it is reported, issue \$5001 of 5 per cent. bonds to refund school bonds issued in 1892.

Miss., Ellisville.—Official: H. C. Speer & Sons Company, Chicago, Ill., purchased on June 3 at par with accrued interest and \$205 premium the \$10,000 of 5 per cent. agricultural high school bonds; denomination \$1000; dated April 1, 1912; maturity April, 1917 and one bond each year thereafter. W. H. Bufkin is Clerk of Jones county.

Miss., Gloster.—Reported that \$5000 of 5 per cent. school refunding bonds will soon be issued.

Miss., Jackson.—Reported that W. W. Downing, Clerk of Hinds County, received bids until July 1 for \$100,000 of 5 per cent. 25-year road bonds.

Miss., Lucedale.—The Supervisors of George County will, it is reported, issue \$25,000 of 5 per cent. road bonds.

Miss., Meridian.—Terry, Briggs & Slayton of Toledo, O., are reported to have purchased \$51,653.42 of road bonds of district No. 5.

Miss., Meridian.—Notice is given that city proposes to issue and sell \$10,000 of bridge and culvert bonds. J. W. Parker is Mayor.

Miss., Moss Point.—According to press dispatches, \$7000 of 5 per cent. street-improvement bonds are to be issued.

Miss., Pheba.—Official: Bids will be opened on July 15 for \$4000 of 6 per cent. bonds to build Clay County Agricultural High School dormitory in Pheba; denomination \$500; dated July 15; maturity July 15, 1932. E. E. Petty is Town Clerk.

Miss., Prairie.—Official: Bids were opened on July 2 for \$3500 of 5 per cent. street-improvement bonds voted April 16, 1912; denomination \$100. Address J. M. Howell, Town Clerk.

Miss., Vicksburg.—Official: Bids will be received until 8 P. M. July 15 by A. M. Paxton, City Clerk, for \$50,000 of 4 1/2 per cent. bonds; denomination \$500; dated June 1, 1912; maturity \$500 each year for 19 years, and remainder \$40,500 on June 1, 1932. J. J. Hayes is Mayor.

Mo., Carthage.—Official: The \$10,000 of 4 per cent. five-year school district bonds have been sold; denomination \$500. Bonds were voted June 18, 1912.

Mo., Princeton.—Official: Compton & Co.,

St. Louis, Mo., purchased on June 12, at \$50 premium, \$20,000 of 5 per cent. high school building bonds; denomination \$500; dated July 1, 1912; maturity 1917 to 1930. Bonds were voted May 17, 1912. Address A. C. Kelly.

N. C., Carthage.—Official: Bids will be received until July 16 for \$30,000 of 30-year water-works and sewerage bonds; denomination \$1000; dated July 1, 1912; maturity July 1, 1942. W. G. Jennings is Town Secretary.

Okla., Ardmore.—An election will probably be held, it is reported, to vote on \$225,000 of pipe-line bonds.

Okla., Guthrie.—A special election is to be held July 10, it is reported, to vote on \$35,000 of viaduct bonds.

S. C., Centerville.—Official: \$3000 of school district bonds have been authorized. Y. S. Gelzer, chairman Bond Trustees, District No. 6. Rysor & Summers, Orangeburg, S. C., are attorneys.

S. C., Greenville.—Harris Forbes & Co. of New York are reported to have purchased, at \$9874.59 premium, the \$150,000 of 5 per cent. 30-year street and sewer bonds. G. F. League is clerk and treasurer.

S. C., Lancaster.—Official: W. N. Coler & Co. of New York purchased on June 20 at \$874 premium the following 5 per cent. 40-year township refunding bonds, Lancaster county: Gills Creek township, \$28,600; Cane Creek township, \$13,000, and Pleasant Hill township, \$5400; denomination \$1000. M. C. Gardner is County Supervisor.

S. C., Laurens.—Official: Coler & Co. purchased on June 23, at 103 and accrued interest, \$10,000 of 5 per cent. 30-year school district refunding bonds; denomination \$1000; dated July 1, 1912. Address Board of Trustees of City Schools.

S. C., Pomaria.—Reported voted: \$1000 of school-building bonds.

Tenn., Chattanooga.—Bids were received until 10 A. M. July 3 for \$57,40 paving district No. 151, dated March 22, 1912; \$1972.50 of paving district No. 148, dated April 12, 1912; \$1020.00 of paving district No. 10, dated January 18, 1912, 6 per cent. 1-2-3-4-year bonds. T. C. Thompson is Mayor.

Tenn., Lookout Mountain.—Reported that it is proposed to hold an election to vote on \$25,000 of road bonds. R. M. Watkins is Mayor.

Tenn., Selmer.—Official: The First National Bank of Selmer purchased at par \$15,000 of the \$20,000 of 6 per cent. McNairy county drainage bonds recently authorized; denomination \$500; dated July 1, 1912.

Tex., Austin.—The Attorney-General is reported to have approved the following securities: \$10,000 of 5 per cent. 10-40-year bonds of Liberty county road district No. 4; \$430,000 of 5 per cent. 30-year water-works and improvement bonds of Waco; \$1600 of 5 per cent. 10-20-year bonds of Fisher county common school district No. 23; \$9000 of 5 per cent. 20-40-year Lavin independent school district bonds; \$25,000 of 5 per cent. 5-40-year bonds of Austin county road district No. 2; \$150,000 of road bonds of Gonzales county.

Tex., Dallas.—Press dispatches state that \$230,000 of school-improvement bonds are to be placed on the market immediately.

Tex., El Paso.—The question of issuing \$150,000 of bonds to extend the paved road from Fabens to Sierra Blanca, El Paso county, is reported under consideration.

Tex., Franklin.—July 23, it is reported, an election is to be held to vote on \$100,000 of road bonds of Justice Precinct No. 5, Robertson county.

Tex., La Grange.—The Fayette County Trust Co. is reported to have purchased at par \$17,000 of sewerage bonds.

Tex., Lavan.—Official: The trustees of Lavan independent school district are receiving bids for \$9000 of 5 per cent. 40-year building bonds; denomination \$500; dated June 10, 1912; maturity June 10, 1952. Bonds were voted June 1, 1912.

Tex., Marshall.—Official: Bids will be received until noon July 9 for \$28,000 of 5 per cent. 10-40-year street-paving bonds; dated July 1, 1912; maturity 1952. Address H. S. Rice, secretary.

Tex., Matagorda.—Reported defeated: School-building bonds.

Tex., Miami.—Reported voted: \$10,000 of Roberts county courthouse bonds.

Tex., Paris.—Reported voted: \$10,000 of garbage furnace, \$15,000 of fire department, \$15,000 of sanitary sewers and \$100,000 of street-improvement bonds; total \$140,000.

Tex., San Elizario.—An election is soon to

[For Additional Financial News, See Page 94.]

Established 1835 The Merchants National Bank

South and Water Sts., BALTIMORE, MD.
DOUGLAS H. THOMAS, President.
WM. INGLE, Vice-Pres. and Cashier.
J. C. WANDS, Asst. Cashier.
JOHN B. H. DUNN, Asst. Cashier.
Capital \$1,500,000
Surplus and Profits - - - \$900,000
Deposits \$12,000,000
Accounts of Banks, Bankers, Corporations and Individuals solicited. We invite correspondence.

THE FIRST NATIONAL BANK OF KEY WEST, FLA.

United States Depository and Disbursing Agent.
Capital - - - \$100,000
Surplus and Undivided Profits - \$40,000
A general banking business transacted.
Special attention given to collections.

INVESTMENT SECURITIES

Southern Stocks and Bonds
Municipal and Corporation
Cotton Mill Stock a Specialty
WM. S. GLENN, Broker - SPARTANBURG, S. C.

JOHN NUVEEN & CO. 1st Nat. Bank Bldg., CHICAGO

We purchase SCHOOL, COUNTY and MUNICIPAL BONDS. Southern Municipal Bonds a Specialty.
Write us if you have bonds for sale.

Delaware Trust Company WILMINGTON, DELAWARE

INCORPORATING under broad, liberal, safe and stable Delaware laws. A fully equipped department for proper organization and registration of corporations.
BANKING AND TRUST department gives special attention to out of town customers' accounts.
TITLE DEPARTMENT examines and guarantees title to realty throughout Delaware.
REALTY DEPARTMENT has sites for manufacturing industries. Modern Methods of management of property.
EDWARD T. CANNY, President.
J. ERNEST SMITH, V.-Pres. and Gen. Counsel.
WM. G. TAYLOR, Treasurer.
HARRY W. DAVIS, Secretary.
W. W. PUSEY, 2d Title and Real Estate Officer.

H. B. Wilcox, President. Blanchard Randall, V.-Pres.
Wm. S. Hammond, Cashier.
Saml. W. Tschudi, A. Cash. R. E. Bolling, A. Cash.

The First National Bank 17 South St., Baltimore, Md.

Capital - - - \$1,000,000
Surplus and Net Profits - - 400,000
Deposits - - - 6,500,000
Especially well equipped to handle the business of Southern Banks, Corporations, and Individuals and Manufacturers. We cordially invite correspondence and interviews.

The National Exchange Bank OF BALTIMORE, MD.

Hopkins Place, German and Liberty Sts.
Capital, \$1,000,000
July 15, 1908, Surplus and Profits, \$671,631.60
OFFICERS:
WALDO NEWCOMER, President.
SUMMERFIELD BALDWIN, Vice-Pres.
R. VINTON LANSDALE, Cashier.
C. G. MORGAN, Asst. Cashier.
Accounts of Mercantile Firms, Corporations, Banks, Bankers and Individuals Invited.

SURETY BONDS Fidelity & Deposit Co. OF MARYLAND

Home Office, - - BALTIMORE, MD.
Total Assets Dec. 31, 1911, \$8,133,000.57
Pioneer Surety Co. of the South.
Becomes Surety on bonds of every description.

AGENTS IN ALL PRINCIPAL CITIES
HARRY NICODEMUS, Sec'y and Treas.
EDWIN WARFIELD, President

Southern Steam Railroad Securities DEALT IN F. J. LISMAN & CO.

Specialists in Steam R. R. Securities
Members New York Stock Exchange
30 Broad Street NEW YORK
39 Pearl Street, Hartford
Land Title & Trust Bldg., Philadelphia

CAPITAL AND SURPLUS - - - \$3,500,000 THE BALTIMORE TRUST CO. BALTIMORE, MD.

Solicits Accounts of Banks, Bankers, Corporations and Individuals.
Interest Allowed on Deposits Subject to Check.
Special Rates Made on Time Deposits.

OFFICERS
DOUGLAS H. GORDON, President
GEORGE C. MORRISON, Vice-Pres.
CHAS. D. FENHAGEN, Vice-Pres.
EDWIN W. POE, Sec.-Treas.

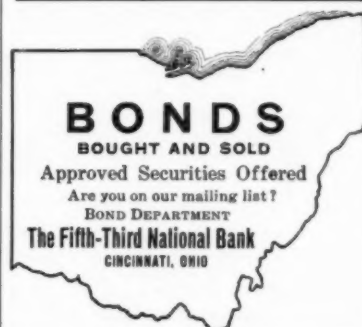


BUSINESS ANALYSTS INVESTIGATORS SYSTEMATIZERS

YOUR BUSINESS SOLICITED
P. W. ROBERTSON, President
Certified Public Accountant.
Fellow Institute of Accounts, New York.
Fellow Va. Society of Public Accountants.

WE BUY City, County, School and Drainage BONDS FROM MUNICIPALITIES OR CONTRACTORS

We are in position to pay HIGHEST PRICES. Write or wire us your offerings.
THE NEW FIRST NATIONAL BANK, Assets, \$6,000,000 Columbus, Ohio



GO SOUTH!
FOR SALE Timber, Coal, Iron, Ranch, Phosphate, Other Properties, Southern States, West Indies, Mexico.
SOUTHERN STATES DEVELOPMENT CO.
(Brokers) GEO. B. EDWARDS, Pres.
Tribune Building NEW YORK, N. Y.
Negotiations, Investigations, Settlements, Purchases of Property, Information

Phone Main 432. Member N. O. Stock Exchange

S. A. TRUFANT 403 Hennen Building NEW ORLEANS, LA.

Investment Securities
CHARLES NEVILLE
Certified Public Accountant
501-502 Savannah Bank & Trust Co. Bldg.
SAVANNAH, GA.
Employing a staff of thoroughly qualified accountants.

Southern Investment Securities Timber, Coal and Mineral Lands J. H. C. BARR Land Title Building Philadelphia, Pa.

CHARLES L. HEHL, C. P. A., President
JOHN KÜCHLER, C. P. A., Vice-President
ELMER L. HATTER, C. P. A., Treasurer
ERNEST E. WOODEN, C. P. A., Secretary

BALTIMORE AUDIT COMPANY 1027-1033 Calvert Building BALTIMORE, MD. BRANCH—Monticello Arcade Building, Norfolk, Va.

Municipal Bonds Purchased

Correspondence invited from Investors wishing to sell their holdings of seasoned marketable Municipal Bonds, and from municipal officials and contractors in connection with entire new issues.

N. W. HALSEY & CO.

49 Wall Street, New York
PHILADELPHIA CHICAGO SAN FRANCISCO

RESOURCES	\$14,975,352.57
DEPOSITS DEC. 31, 1909.....	\$ 8,041,252.59
DEPOSITS DEC. 31, 1910.....	8,809,843.00
DEPOSITS DEC. 31, 1911.....	10,344,570.57

This growth indicates that we have the ability and disposition to give GOOD TRUST COMPANY SERVICE. We can prove it—to your advantage.
ALLOWS INTEREST on daily balances of \$500 or over, subject to check, and special rates for time deposits.
ACTS AS TRUSTEE under mortgage, Registrar and Transfer Agent of Stocks and Bonds of Corporations.
Securities held on deposit for out-of-town corporations and individuals.
Acts as Financial Agent for Municipalities and Corporations.

MERCANTILE TRUST & DEPOSIT COMPANY OF BALTIMORE CAPITAL - \$1,500,000.00 SURPLUS - \$3,000,000.00

Never Apply Dressings

TO

"AMERICAN" Transmission Rope

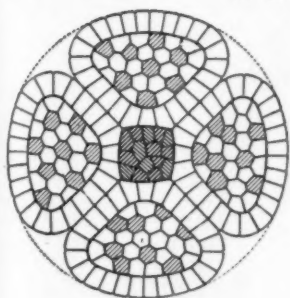


FIG. 12
A "American" Transmission Rope Showing Lubricated and Cover Yarns

It Doesn't Need Dressing

It is permanently self-lubricating; the core about which the strands are laid and several yarns of each strand are impregnated with a specially prepared lubricating and waterproofing compound, which prevents internal wear and preserves the fibre in its original state.

"AMERICAN" Transmission Rope has proved itself not alone the most durable of transmission ropes, but the **cheapest, most efficient and most economical** of all known means for transmitting power.

Write for our "BLUE BOOK OF ROPE TRANSMISSION."

American Manufacturing Company

Makers of "American" Transmission Rope

Noble and West Sts.

Brooklyn, N. Y. C.

be called, it is reported, to vote on \$71,000 of irrigation bonds.

Tex., Sherman.—July 25, it is reported, an election is to be held to vote on \$198,000 of school, sewer, fire-department and water-extension bonds.

Tex., Sour Lake.—Reported defeated: \$123,000 of road district No. 2, Hardin county, bonds.

Tex., Sweetwater.—Reported voted: \$35,000 of sewer bonds.

Va., Chase City.—Official: J. B. McCrary Company of Atlanta, Ga., has purchased the \$25,000 of water and \$20,000 of sewerage 5 per cent. bonds; denomination \$1000. N. H. Williams is treasurer.

Va., Dublin.—July 30, it is reported, an election will be held to vote on \$100,000 of road bonds of Dublin district.

Va., Newport News.—The election to vote on \$250,000 of boat-harbor bonds will, it is stated, be held July 25. Marcus Jones is Mayor.

Va., Portsmouth.—Steps are reported being taken to issue \$600,000 of municipal water-works bonds.

W. Va., Chester.—Bids will be received until 2 P. M. July 20 by L. Baxter, secretary Board of Education, for \$30,000 of 5 per cent. 10-30-year water and light plant bonds.

W. Va., Keyser.—Reported voted: \$15,000 of school district building bonds.

W. Va., Keyser.—Bids will be received until noon July 5 for \$15,000 of 5 per cent. school district bonds; denomination \$500; maturity August 1, 1922, to August 1, 1929, inclusive. W. S. Davis is president and L. R. McCoole, secretary Board of Education.

W. Va., Wheeling.—Reported that bids will be received until 2 P. M. July 18 by James P. Maxwell, Clerk, for \$25,500 of 5 per cent. 10-year street-improvement bonds; denomination \$500; dated June 1, 1912.

At Vicksburg, Miss., bids will be received until 8 P. M. July 15 for \$50,000 of 4½ per cent. bonds. *Further particulars will be found in the advertising columns.*

At Marshall, Tex., bids will be received until noon July 9 for \$28,000 of street paving 5 per cent. 10-40-year bonds. *Further particulars will be found in the advertising columns.*

At Fort Meade, Fla., bids will be received until noon July 25 for \$39,000 of 5 per cent. 15-30-year water-works and sewerage bonds. *Further particulars will be found in the advertising columns.*

At Cartersville, Ga., bids will be received until 2 P. M. July 25 for \$53,000 of 5 per cent. 30-year electric light, gas, water-works and school improvement bonds. *Further particulars will be found in the advertising columns.*

At St. Andrews, Fla., bids will be received until noon August 9 for \$30,000 of 5 per cent. 10-30-year bonds. *Further particulars will be found in the advertising columns.*

FINANCIAL NOTES.

The Independent Pneumatic Tool Co. of Chicago has declared its regular quarterly dividend of 2½ per cent., payable July 10.

The Cherokee Insurance Co. and the Rome Insurance Co., both of Rome, Ga., have consolidated under the name of the former institution. W. W. Bowie is president.

The National Exchange Bank of Baltimore reports June 14, 1912, loans and discounts, \$4,420,321; due from banks, \$839,362; cash and due from reserve agents, \$1,427,110; capital stock, \$1,000,000; surplus and undivided profits, \$759,493; circulation outstanding, \$936,347; deposits, \$4,963,934; U. S. deposits, \$127,196; total resources, \$8,286,971. Waldo Newcomer is president, Summerfield Baldwin vice-president, R. Vinton Lansdale cashier, and Clinton G. Morgan assistant cashier.

Press dispatches state that the First and Fourth National banks of Nashville, Tenn., are to be consolidated under the name of the Fourth and First National Bank of Nashville, the consolidation to become effective July 8; capital \$1,100,000. J. E. Caldwell will be president and Randal Curell cashier.

At the annual meeting of the North Carolina Bankers' Association, held at Morehead City June 26-28, the following officers were elected for the ensuing year: Leake S. Covington, Rockingham, president; George A. Holderness, Tarboro, first vice-president; Thomas E. Cooper, Wilmington, second vice-president; J. L. Armfield, High Point, third vice-president, and W. A. Hunt, Henderson, secretary and treasurer. Executive commit-

tee: Clarence Latham, Plymouth; W. E. Warren, Wilson; George B. Pendleton, Newbern; H. E. Ditchford, Raleigh; John F. Watlington, Reidsville; C. V. Brown, Lumberton; W. S. Blakeney, Monroe; C. P. McNeely, Mooresville; A. G. Myers, Gastonia, and Capt. J. P. Sawyer, Asheville.

The Republic Trust Co., capital \$5,000,000, chartered at Phoenix, Ariz., has been grant-

ed permission to do business in Texas, with office in Dallas. Directors: C. L. Wakefield, Dallas, president; George H. Bird, Fred R. Johnston, A. Silvers, Dallas; J. T. Carlington, Sweetwater; J. D. Whitcomb, Groesbeck; T. C. Morgan, Longview; J. L. White, McKinney; B. H. Davenport, Denton; J. R. Hunt, Bowie; H. S. Bettes, Paris; B. A. Carter, Emory; J. L. White is Texas agent.

Capital for Southern Industries

Peabody, Houghteling & Co.

(Established 1865)

105 So. La Salle Street

CHICAGO, ILLINOIS

H. F. SIEBER & COMPANY

FISCAL AGENTS

Stephen Girard Building, Philadelphia.

We are prepared to furnish capital for the development of sound industrial propositions, Irrigation, Lighting Plants, Electric Railway and independent telephone corporation bonds placed on a reasonable commission basis. Thorough audits of corporation books by our own experts. Companies incorporated and reorganized. Charges commensurate with the value of services rendered.

FOREIGN REPRESENTATION.

To Manufacturers and Capitalists

Contemplating the Establishment of Industrial Enterprises

Attention is called to the exceptionally favorable location of

NEWPORT NEWS, VA.

on Hampton Roads, fifteen miles from the sea. Deep water, railway and sea transportation facilities unrivaled. Climate salubrious. Apply to

W. B. LIVEZEY, President

OLD DOMINION LAND COMPANY
NEWPORT NEWS, VA.

Schacht

An Ideal General Utility Truck

The powerful Schacht for general utility purposes is a *proved* model. It has a chassis built for years of *service*—an engine of untiring strength—big loading space, 11 ft. 5 in. back of seat on chassis frame. Speed up to 18 miles an hour—capacity 1 to 4 tons.

Horse-drawn vehicles can no longer compete with the Power Wagon. *More* trips are made with the truck—*quicker service* is made possible—teamsters' wages are practically eliminated—greater satisfaction is given.

1, 2, 3 and 4 Ton Sizes

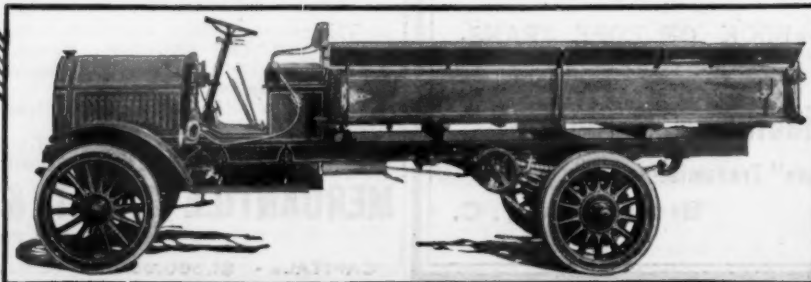
The construction of the Schacht is far *stronger* than some truck manufacturers think necessary—but Schacht users have found that added strength pays them big dividends.

Our illustrated booklet will give you full description and details of the Schacht Truck. Write us a postal or letter today and receive this booklet. It will be mailed *free of charge* to you.

The Schacht Motor Car Co.

2850 Spring Grove Ave.

Cincinnati, Ohio



Dolarway Pavement

"It is permanent because it is concrete"

The Last Word In Street Pavements

The Dolarway Pavement is popular with City Officials, Highway Engineers and Property Owners because:

It is low in first cost.

Its maintenance cost is lower than that for any other permanent form of Pavement.

No paving plant is required to either construct or maintain it.

It is noiseless, dustless and resilient.

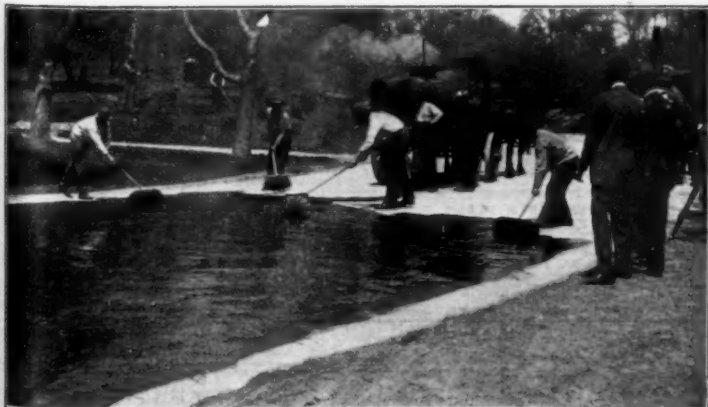
Its traction qualities for both the Horse and the Automobile are of the best.

For full particulars address

DOLARWAY PAVING COMPANY

95 Liberty Street, New York City

510 Title & Trust Bldg., Chicago



Applying Dolarway Bitumen on Concrete Base, Central Park, New York City



Spreading fine gravel over Dolarway Bitumen, Central Park, New York City

Classified Opportunities

MEN WANTED

HIGH-GRADE SALESMEN having acquaintance among large manufacturers will hear of side line paying liberal commission; no samples required. Address "Allen," Box 663, Cincinnati, Ohio.

WANTED—A hustler to sell some valuable lands, subdivided, small quantities, good terms, from blueprints; 10 per cent. commission allowed. Address No. 1065, care Manufacturers Record.

WANTED—First-class sheet-metal worker with thorough knowledge of metal, sash and frame business; good opportunity for right man. Success Novelty Co., Inc., 601 Stockton street, South Richmond, Va.

WANTED—Mechanical engineer with salesman ability to sell steam specialties; can make \$2500 to \$5000 per year. Address Manufacturers Supply Co., 704 Realty Building, Charlotte, N. C.

WANTED—Good salesmen for high-class subdivision in famous Houston-Galveston district, on electric interurban, close to Houston. This is your opportunity to make money. Write for particulars. Address South Texas Mortgage Co., Houston, Texas.

WANTED—Practical ice and light man with \$10,000 to take stock and assume management of plant in town of 4000 population in fine black land belt. Plants have been thoroughly overhauled and are in fine shape. Will incorporate business. Have too much other business to look after is reason for change. Address Honey Grove Ice & Light Plant, Honey Grove, Tex.

SALES MANAGER WANTED.

Big house wants first-class sales manager to sell medium to coarse colored cotton goods of established reputation to the large wholesale trade; must be a "top-notch" in ability and experience and be able to handle the proposition successfully from the start; must know goods, markets and dry-goods people thoroughly; must organize his own selling force and be able to reach the biggest wholesale trade without experimenting and without delay.

Permanent place and generous salary to right man.

State age, habits, former positions held and salary expected. Address by letter only, Cotton Fabrics, care Lord & Thomas, No. 5 South Wabash Avenue, Chicago, Illinois.

WE WANT manufacturers' agents or salesmen who are familiar with the sale of building special ties to sell, on commission, the best metal store front (copper) made. We want one live wire in each city. We have the real goods and we only want real salesmen. Address No. 1049, care Manufacturers Record.

AGENCIES WANTED

ESTABLISHED industrial engineers having excellent seaboard and export connections are open to act as New York and foreign representatives for well-established manufacturer. Are thoroughly informed in the lines of handling, conveying and operating appliances; of railway equipment and track; of manufacturing equipment, and of steel and concrete structural work. Ample and well-equipped offices in very best location. Correspondence solicited. Address No. 1057, care Manufacturers Record.

SITUATIONS WANTED

COMPETENT OFFICE MAN is open for engagement to install and manage cost system; Georgia or Alabama preferred. Address No. 1055, care Manufacturers Record.

ACCOUNTANT (experience in practice), auditor, office manager; employed; long experience various businesses and positions. A good many people say "he knows." What about the place you want to fill? Address No. 1056, care Manufacturers Record.

OPEN FOR POSITION.—An up-to-date commercial secretary, experienced in municipal sanitation, has a record as a home builder. Is open for an offer and will be pleased to communicate with any organization looking for a live man. Address No. 1064, care Manufacturers Record.

YOUNG MARRIED MAN, 33 years of age, with over 16 years' experience handling accounts-cost data, finances and correspondence for general construction company, together with some experience in general supervising, desires similar position; can furnish best of references. Address No. 1050, care Manufacturers Record.

EDUCATIONAL

RENSSELAER POLYTECHNIC INSTITUTE, TROY, N. Y.—Courses in Civil, Mechanical and Electrical Engineering, and General Science, leading to the degree of Civil Engineer (C.E.), Mechanical Engineer (M.E.), Electrical Engineer (E.E.), and Bachelor of Science (B.S.). Special courses in engineering and science. Splendidly equipped new engineering laboratories. Send for catalogues to Registrar.

AUDITOR AND ACCOUNTANT

INVESTORS—STOCKHOLDERS.—JOHN S. OGLESBY, PUBLIC ACCOUNTANT, DALLAS, TEXAS. Impartial audits; disinterested appraisals; economical, simple systems. All work given personal attention and supervision. Highest references. Correspondence invited.

Rate 20 cents per line per insertion. Minimum space accepted, four lines. Maximum space accepted, 24 lines. Allow seven words per line. Terms: Invariably cash with order; check, postoffice or express order or stamps accepted. No display type used. Questionable or undesirable advertisements will not be accepted. The assistance of our readers in excluding undesirable advertisements is requested. We reserve the right to refuse any advertisement. No patent medicine, whiskey or mining stock advertisements accepted. Rate for special contracts covering space used as desired within one year, as follows: 100 lines, 18c. per line; 300 lines 16c. per line; 500 lines or more, 15c. per line.

BANKS

THE PALMETTO NATIONAL BANK, Columbia, S. C., capital \$250,000, solicits accounts of banks, firms, corporations and individuals, either commercial or savings accounts.

CAPITAL WANTED

WANTED—Buyer of capital stock in well-equipped veneer plant in midst of good timber to run twenty years; business demands increased capital. Box 41, Jackson, Mississippi.

PARTNERS WANTED

PARTNER with \$15,000 wanted to join me in forming construction company to operate in the South. Address No. 1036, care Manufacturers Record.

WANTED—Partner with small capital to start French dry cleaning and steam laundry; must thoroughly understand steam laundry; good opportunity to right party. Box 81, Winter Park, Fla.

BUSINESS OPPORTUNITIES

ABSTRACTS OF TITLE a specialty. Loans negotiated. Inheritances investigated and procured. Real Estate Title Co., New Martinsville, W. Va.

FOR SALE—Townsite in best farming section of Central West Texas, on new trunk-line road; will consider city income property in exchange. Address Box 385, Houston, Tex.

MAN OF BUSINESS EXPERIENCE with \$10,000 capital would like to buy whole or an active interest in lucrative business. Address H. B. L., Postoffice Box 544, Charlotte, N. C.

WE WANT to get in touch with reliable parties who handle colonization and immigration propositions. We have about 1200 acres adjoining Raymond which we would like to open up. Address Raymond Land Co., Raymond, Ga.

WANTED—To lease store and hotel department of some good industrial company, to be operated in connection therewith; have attractive proposition for first-class enterprise. Address T. L. Betterton, 1105 North Third Ave., Knoxville, Tenn.

MANUFACTURING and machine shop would like to correspond with young man of clean, Christian habits, thoroughly trained in this line, with view of investing a working interest with us. Address No. 999, care Manufacturers Record.

MANUFACTURERS AND INVESTORS.—No quicker way to get rich than to market a good invention. We have several splendid propositions. Write us. Adam Fisher Mfg. Co., St. Louis, Mo.

FOR SUBURBAN DEVELOPMENT.—For Sale—Splendid tract of land on electric line, many other advantages for subdivision; close in, adjacent to growing suburban section of this rapidly-growing city; something worth buying and developing or holding for advance. R. H. Scruggs, Norfolk, Virginia.

LOCAL BOARDS OF TRADE in Southern and Western cities of 15,000 and over will find it to their advantage to write immediately to H. R. Wright, 929 Stephen Girard Building, Philadelphia, Pa.

SAWMILL AND NAVAL STORES propositions, light manufacturing enterprises, general and special line mercantile establishments, timber and large tracts of agricultural lands, site for profitable industries. We are preparing to sell stock in several live corporations that offer good positions to executive men. Florida Improved Farms Co., P. O. Box 1428, Jacksonville, Fla.

FOR LEASE OR SALE—A boarding and day school for girls under the auspices of the Episcopal Church, in a growing city in the South; superb location; healthy mountainous climate; fine water; one thousand feet above sea level; school affiliated with leading colleges for women in the South; buildings beautiful architecturally, stone and brick, in excellent condition; recently thoroughly overhauled and repaired; new plumbing and heating apparatus; school is ripe for expansion, with good prospects, and needs only the right man or woman at the head to realize its possibilities; present rector retiring for good reasons. Address, for particulars, Rev. James G. Glass, Noble Institute, Anniston, Ala.

JOIN ME AND REAP A FORTUNE.—Have advance information as to railroad townsite location. Big, quick turn. Get busy now. Bonanza. J. H., Box 217, Marfa, Tex.

AUTOMOBILES

FOR SALE.—Do you want a bargain in a second-hand car? The advertiser wishes to dispose of his 30-horse-power four-passenger Mitchell. The price is \$675, f. o. b. Baltimore. It has just been overhauled and is in prime condition. The equipment includes demountable rims and shock absorbers. It has been driven by the owner and has always had the best of care. Full description will be sent to interested parties. Address No. 1045, care Manufacturers Record.

TECHNICAL SUPPLIES

TECHNICAL SUPPLIES.—Manufacturers' agents. Drawing materials, mathematical, scientific and engineering instruments. Enterprise Typewriter & Supply Company, 609 E. Baltimore St., Baltimore, Md.

VIRGINIA HOMESTEADS

FOR SALE—One of the finest estates in Eastern Virginia; 1187 acres; splendid mansion; ample outbuildings; well located. R. B. Chaffin & Co., Inc., Richmond, Va.

FOR SALE—900-acre Virginia homestead; colonial mansion, 25 rooms; at station on Southern Railway; beautiful river; boating and fishing; fully stocked herd of thoroughbred Jerseys, Kentucky horses, farm mules, agricultural implements; mineral springs; cool in summer. Price \$50,000; fully equipped; possession at once; long time given on one-half price if desired. Address Holston Industrial Co., Inc., Big Stone Gap, Virginia.

FACTORY SITES

FOR SALE.—Best-located factory site around Atlanta; six acres; level; on Southern R. R. Industrial Line, opposite Atlanta Steel Co.; 1160 feet railroad frontage; two side tracks; brick warehouse 100x100 feet; 22,000-gallon steel tank; city water supply and two cottages on premises. Apply to J. C. Clark, No. 931 Candier Bldg., Atlanta, Ga.

MANUFACTURING AND WAREHOUSE SITES

MANUFACTURING AND WAREHOUSE SITES in and near the City of Richmond, located along line of Southern, Seaboard Air Line, Atlantic Coast Line, Chesapeake & Ohio and Richmond, Fredericksburg & Potomac railways; truckage facilities. Hawkins & Buford, 100 N. 7th St., Richmond, Va. P. O. Box 1013. Reference: Nat'l State and City Bank, Central Nat'l Bank.

INDUSTRIES WANTED

MISCELLANEOUS

NORFOLK, VIRGINIA, is a growing, thriving city; splendid climate; eight trunk-line railroads; great harbor; steamships to domestic and foreign ports and many other advantages; liberal inducements for manufacturing plants, home seekers and those who want to build and sell houses. Address Ballentine Realty Corporation, Norfolk, Va.

WICHITA FALLS, TEXAS, wants to convince you that it possesses wonderful opportunities for manufacturing, jobbing and agriculture. We have coal, oil, gas and water, cheap and in abundance. Transportation facilities and rates equal and in some respects superior to any city in the Southwest. Home industry is protected better in Texas than in any other State. Growth 1900-1910, 230 per cent. No important city in Southwest is growing so rapidly. See census reports. No boom; just development of natural resources. Postal brings full information. Chamber of Commerce, Box 4.

INDUSTRIAL PLANTS FOR SALE

NEWSPAPER PLANT

FOR SALE—NEWSPAPER PLANT in a new and fastest-growing town in New Mexico; worth about \$1700. Also for other investments, agriculture or otherwise, write Heilberg & Blair, 418 Roberts-Banner Bldg., El Paso, Texas.

DRYDOCK AND SHIP YARDS

ENTIRE PLANT or good block of stock with management of second largest drydock and shipyards south of Newport News; has paid 8 per cent. dividends and accumulated good surplus for past 8 or 10 years; appraised value of stock, \$180; par, \$100; big future in pleasure-craft manufacture; development of canal makes repair feature best in South. Florida Improved Farms Co., P. O. Box 1428, Jacksonville, Fla.

MACHINE SHOP AND FOUNDRY

FOR SALE—Machine shop and foundry; well established; making 35 per cent. on the investment; good chance to increase the business. Address "Machinery," P. O. Box No. 983, Tampa, Fla.

FOR SALE OR RENT—On favorable terms, fully-equipped machine shop and foundry with full line of patterns for parts for standard machines used in the cement district; is now running; has established trade, and is in district where plenty of labor can be obtained; no labor troubles. For full information apply to Executors Estate of Conrad Miller, dec'd, Nazareth, Pa.

SAW MILL, KILNS AND PLANING MILL

FOR SALE.—The directors of a company owning and operating a band-saw mill, kiln and planing mill, located on the Atlantic Coast Line Railroad in North Carolina, offer the said plant for sale, complete, and in full operation, at a figure below the net cost of building and equipping. It has been pronounced one of the best planned and equipped mills in North Carolina. Capacity, 30,000 to 40,000 feet finished lumber per day. 100,000,000 feet pine timber immediately tributary, and in addition large quantities of gum and cypress. Only responsible parties with business intentions need reply. Address W. Beatty Harlan, Churchville, Md.

ELECTRIC LIGHT PLANT

FOR SALE—An electric-light plant on a paying basis in a growing North Carolina town; good proposition for anyone with about \$5000; owner has other business. Address No. 1061, care Manufacturers Record.

FACTORY BUILDING

FRAME BUILDING, 125x80 ft., with 30 skylights, two two-and-a-half-story frame buildings, 60x30 ft., with elevator in each, with two acres land, situated on main line of railroad in small but growing town in South Carolina, situated for stepladder, wheelbarrow, furniture or wagon factory; plenty of gum, poplar, oak and pine timber at hand. This property could be had on low proposition. Can furnish 50-horse-power engine and 60-horse boiler on adjoining property. For information address L. I. Straum, agent, Sumter, S. C.

MANUFACTURING PLANT

FOR SALE OR RENT—Manufacturing plant at Kingston, N. C.; six acres ground; two buildings, each 110x50; two stories, brick; 150 H. P. Corliss engine, two boilers, dynamos and motors. Kingston Real Estate Co., Hacketts town, N. J.

CANNING PLANT

FOR SALE—Old-established and prosperous canning business, packing high-class line of fruits, vegetables, jellies, jams, etc.; modern plant, located near Boston. Edward Wilbur, 125 Summer St., Boston, Mass.

CANNING PLANT AND BRICK YARD

BEST CANNING PROPOSITION in Southern States; can be handled with small amount of capital; half interest in fine brick yard plant; all if absolutely required. Florida Improved Farms Co., P. O. Box 1428, Jacksonville, Fla.

COFFIN FACTORY

ONE OF THE BEST EQUIPPED modern coffin factories in the Southern States, located in Jacksonville; raw material at the doors, with rail and water transportation; best cash offer and quick action takes this snap; satisfactory reason for selling; original cost of plant and real estate, \$16,000. We invite correspondence. All dealings confidential. Refer to any mercantile agency, the Jacksonville Board of Trade, or J. D. Rooney, assistant general industrial agent of the Seaboard Air Line Railway, located at Jacksonville, Florida Improved Farms Co., P. O. Box 1428, Jacksonville, Fla.

COTTON-OIL MILL

FOR SALE.—Owning two three-press cotton-seed-oil mills, complete, in the same town, we desire to sell one to be moved to some other point. If you contemplate erecting a mill it will pay you to write us, as we can sell you a complete outfit at a bargain. Monroe County Cotton Oil Company, Aberdeen, Miss.

BRICK AND TILE PLANT

ATTENTION, BRICK MEN!—For Sale at a Sacrifice—Controlling interest in Garrison Brick & Tile Company of Garrison, Texas. This company owns plant and 600 acres best land; and paying brick clay in South. Popularity proven by receiving unsolicited orders for forty-five million brick in one season. L. C. Christian, Trustee, Houston, Tex.

CREOSOTE PLANT

CREOSOTE PLANT FOR SALE.—One cylinder 100 ft. long, one cylinder 85 ft. long, 7-16" thick, 6 ft. diameter; 12 iron cars; all necessary pumps, piping and track. It is also a valuable plant for changing sap gum to red gum at small cost. Will sell at one-fourth original cost. Savannah Valley Lumber Co., Augusta, Ga. (Owners).

SAW MILL WANTED

WANTED—Party with mill to cut, under contract, 25,000,000 feet timber, Gadsden county, Florida; operations to commence without delay. State full particulars. President, 618 Fidelity Bldg., Philadelphia, Pa.

Classified Opportunities

LAND WANTED

WE WANT TRACTS OF LAND located in or immediately adjoining thriving cities; must be well located and suitable for plating into town lots. F. J. Raymond Realty Co., Evansville, Ind.

MINERAL AND TIMBER LANDS, WATER POWERS AND MISCELLANEOUS PROPERTIES

BEFORE YOU BUY LAND or make an investment in the South or Southwest send for a copy of my "Investor and Land Buyer" with list of splendid properties for sale; free on application. Jo A. Parker, Parma, Mo.

FAMOUS SPRINGDALE FRUIT DISTRICT, northwest Arkansas, in Ozarks; ideal climate; no malaria, mosquitoes, negroes, saloons; bearing orchards, \$1 acre up; ideal fruit land, \$30 acre up; no irrigation necessary; city homes, \$1000 to \$3000; free list; ten cents, census map. If interested in timber send for hardwood propositions. We operate all over the State. Fredricks Realty Company, Springdale, Washington Co., Ark.

IF YOU WANT cypress lands, pine lands, cut-over tracts, colony tracts, ten and twenty-acre tracts, orange groves, truck farms, write to G. C. Rogan, Box 334, Lakeland, Fla. Fifteen years in the State.

VIRGINIA AND NORTH CAROLINA farms and timber lands, city and suburban real estate, factory sites. Write us before buying. Seaside Realty Corporation, 422 Law Building, Norfolk, Va.

WINTER HOMES and home sites in attractive modern Florida town; some beautiful fresh, also salt water frontages; truck and fruit lands; bearing orange groves, timber and colonization tracts. W. W. K. Becker, Tarpon Springs, Florida.

SAN ANTONIO—390 acres, partly within the city limits; very high and slightly; close to street car and ripe for development; the best speculative buy in S. W. Texas. With two new railroads opening headquarters here a tremendous impetus has been given business in this section. Owner must sell. Price \$160 per acre; far below market value. Rhodus & McAllister, Exc. Agts., 418 Navarro St., San Antonio, Texas.

BRICK CLAY DEPOSIT

A FINE BRICK-CLAY DEPOSIT, with truckage to two railroads and deep-water delivery, for lease or sale to responsible operators by a big corporation; market excellent. Address No. 1044, care Manufacturers Record.

CITY PROPERTIES

10 FEET front by 150 deep on Houston street, San Antonio, next block from Clower Building and one block from the big Rand building now going up, which will be used as a big department store; price \$1000 per front foot; will sell part. Kerr & Moore, Land Merchants, San Antonio, Texas.

IN THE DISTRICT OF COLUMBIA, 103 acres extremely desirable for subdivision, fronting on 16th street and the National Rock Creek Park, at a bargain price. Property immediately adjoining has been subdivided, and in a few months almost \$100,000 worth of lots have been sold at 20 cents to 30 cents a square foot. Full particulars upon request. Robert E. Heater, Colorado Building, Washington, D. C.

FOR SALE BY OWNER—High-class business property on W. Commerce St., San Antonio, Texas, improved with new building bringing a rent of \$515 per month. If sold in 30 days will take \$450 per front foot. This property will double in value in 3 years. Forced to sell. Terms: 1/4 cash; balance 7%. J. P. Lovelady, 1130 West Commerce, San Antonio, Texas.

GRANITE DEPOSIT

VIRGINIA GRANITE—A big corporation will sell, lease or otherwise dispose of the most valuable granite deposit in Virginia, with truckage to two railroads and deep-water delivery; equipped to get out paving blocks, dimension and crushed stone. Box 20, Petersburg, Va.

OIL AND GAS LANDS

TO LEASE or let for development, 300 acres of land, rich in petroleum, gas and other oil signs, in Cass county, Texas, on tributary of Caddo Lake. C. A. Tower, Henderson, Tex.

COAL MINE FOR SALE

FOR SALE—Mine with 2500 acres of coal and surface; electrically equipped; brick buildings for machinery; 50 miners' houses; capacity 1000 tons; operating non-union; running full; three workable seams. For particulars address Chas. E. Baker, Madisonville, Ky.

OIL AND FARM LANDS

FOR SALE AT A BARGAIN, 80 acres of valuable farming land with \$90 per month income from oil royalties. Also other valuable farms with oil royalties. Address E. E. Giza, Box 1046, Bartlesville, Okla.

COAL LAND FOR SALE

400 ACRES coal land in Kentucky for sale; in sight of railroad; deal direct with purchaser only; bargain. Apply at once. W. H. Tompkins, Bristol, Va.-Tenn.

COAL AND TIMBER LANDS

FOR SALE—Timber and coal land; 3400 acres fee simple, 1100 mineral rights in red ash district Southwest Virginia; two miles coal-carrying road; complete survey; in sight 35,000,000 tons coal, 4,000,000 feet hardwood timber; owners' sale; no agents. Address No. 1044, care Manufacturers Record.

HARDWOOD TIMBER OPPORTUNITY

HARDWOOD OPPORTUNITY for operator of good credit to contract for any part of 500,000,000 feet hardwood Eastern Kentucky, to be paid for as cut at low stumpage price. No cash required. Must build mill on property. J. H. S., Room 1408, 60 Broadway, New York city.

TIMBER FOR SALE

FOR SALE—4,500,000 feet of pine timber, immediately on railroad; 65 miles from Norfolk; cheap to quick buyer. Jordan & Davis Company, Norfolk, Va.

TIMBER LAND FOR SALE

ONE MILLION ACRES hardwood; any size tract, anywhere it grows; white oak a specialty; two million acres Southern and Northwestern pine, fir and cedar. Jones Timber Man, Pettigrew, Ark.

FOR SALE—1000 timber tracts in the South from 1000 acres and up to any size wanted; 20,000,000 acres listed. Good agents can share in these sales. Write J. C. Bolinger, Hagerstown, Md.

TIMBER LAND FOR SALE—12,000 acres in Issaquena county, Mississippi, 3 miles from a small town, on the Y. & M. V. R. R.; about 53,000,000 feet hardwood; soil is rich alluvial and drainage is very good, making this a fine colonization project after timber is removed. Price \$20 an acre. Plat and further details upon application. Barney & Hines, Inc., No. 1358 Central Bank Bldg., Memphis, Tenn.

TIMBER AND TURPENTINE LOCATIONS

FOR SALE—Timber and turpentine locations; investment property that really earns profits; speculative property that is really worth while. Watch Savannah grow. Georgia Real Estate Co., 7 York street East, Savannah, Ga.

TIMBER, SAW MILL AND TRAM ROAD

FOR SALE—A 15,000 to 20,000-foot capacity sawmill, planing mill, 15,000 capacity dry-kiln and two and a third miles of well-built tramroad to the timber; one Shay locomotive; one skidder and other logging equipment; 20,000,000 feet of standing pine and hardwood timber, with five and ten-year leases over same, and 10,000,000 feet additional joining that can be secured at reasonable figures; considered one of the best logging propositions now on the market. All of the above offered as one proposition; located on the Charleston & Western Carolina Railway in lower South Carolina. Freight rate to port, 5 1/2c. per hundred pounds. Georgia Real Estate Company, Savannah, Ga.

CUT-OVER LANDS

11,000 ACRES of cut-over land for sale; perfectly adapted to farming, with little drainage; situated along the G. & W. Railroad and Marion-Andrews Railroad; town of Andrews almost in center of tract; will be sold very cheap if bought in bulk. Edwin Harper, Kingstree, S. C.

FARM AND TIMBER LANDS

TEXAS GULF COAST LANDS—3800 acres, 2200 prairie and 1600 timbered; touches rail and water transportation; 33 miles Houston; \$23 per acre; 10 cash; balance to suit; 7 per cent. on deferred payments. F. S. Phillips, Angleton, Texas.

COLONIZATION LANDS

EIGHTY THOUSAND ACRES in Brewster Co., Texas; close to railroad; best colonization tract for \$5.00 in Texas; plenty of water for irrigation; soil is rich, 75% tillable, and smooth.

Eight thousand acres in Jackson Co., Texas; in rain belt; equally divided in prairie and timber; rich black sandy loam, underlaid with clay subsoil; no finer tract to subdivide; will retail from \$30 to \$40; five miles from railroad. Price \$18. Write us quick for full particulars. G. C. Thompson Land Co., No. 228 St. Mary's St., San Antonio, Texas.

COLONIZERS AND INVESTORS.—Three thousand acres of choice Dimmit county artesian belt land, 2 1/2 miles railroad station; suitable for development or colonization; surrounded by the best flowing wells in Dimmit county, and adjoins land now selling above \$100 per acre. The price and terms are right. Texas Land & Loan Co., 229 East Houston St., San Antonio, Tex.

ALABAMA COLONIZATION LANDS.—Large tracts unimproved lands near Mobile; great tract; also in other parts of State; low prices; no better propositions in South; productive soil; a present opportunity. Write us. Alabama State Agricultural Land Co., Center, Alabama.

FINE COLONIZATION PROPOSITION, consisting of about 30,000 acres of cut-over pine and cypress lands in Southeast Georgia; 90 per cent. tillable when cleared; will average 2000 feet per acre. This is for quick sale; no trade considered; \$2.25 per acre. S. T. Randle, Real Estate and Investments, Paducah, Ky.

PLANTATIONS FOR SALE

MISSISSIPPI—3555 acres of good hill cotton land for sale; now in successful operation; well supplied with negro labor. The plantation lies between two branches of the Illinois Central R. R.; nearest shipping point four miles from the dwelling. The land corners within half mile of the shipping point. A sufficiency of cabins for tenants, stables, cribs, cotton pens and all outbuildings; 45 head of mules and horses, cows, farming implements and feedstuff. Price very low; terms good. Address A. C. Leigh, Grenada, Miss., bona-fide owner.

FINE OLD PLANTATION of 2650 acres in Southeast Georgia, near salt water, and irrigated; can raise anything that this section will produce; especially adapted for celery, lettuce and cabbage; ideal location on National Highway and railroad; fine hunting and fishing; can be subdivided to advantage; big money-maker. Price \$25 per acre; terms can be arranged. Address Postoffice Box 478, Jacksonville, Fla.

ORANGE GROVES

ORANGE GROVES planted, cultivated and guaranteed for four years; \$500 per acre; \$50 down, \$10 monthly; no interest or taxes; 15 miles from New Orleans. N. J. Ciesl, 821 Gravier St., New Orleans.

FARM, FRUIT AND TRUCK LANDS

ALABAMA

FARMS for sale in the celebrated Choctawhatchee and Alexandria valleys, Calhoun county, Ala. Fine land, good water, climate and roads, telephones, schools and churches make it ideal. Titles good. O. H. Parker & Company, Anniston, Ala.

C. C. MECHEM, Bank of Mobile Building, Mobile, Ala., makes a specialty of handling small tracts of land on easy terms. He guarantees his titles in the Title Insurance Co. of Mobile, Alabama, charges no interest on deferred payments and pays all taxes until deed is delivered. Call and see him.

FOR SALE—Bargain—55 acres, 50 cleared, on Lookout Mountain; 2300 feet elevation; 4000 sure bearing peach trees; only \$1650, cash or half cash, if sold at once. W. S. Lide, Valley Head, Ala.

NORTH CAROLINA

FOR SALE CHEAP—25-acre rich North Carolina mountain place; abundantly watered; near station; finest orchard, summer house, truck or dairy proposition in Asheville section; tenant's house; some fruit. Address Sheffield, Route 4, Columbia, South Carolina.

TEXAS

BARGAINS.—Fine black sandy and mixed land farms for sale; bountiful rains, unprecedented crop prospects, unrivaled climate, bright future. McMickin & Stovall, Stockdale, Tex.

I HAVE FOR SALE, in a body—no trading—15,382 acres of land. I challenge the world to show as valuable a property that can be purchased at the price asked for this. Send for description. W. H. Graham, Cuero, Tex.

FINE LANDS IN COAST COUNTRY—RAIN BELT.—Solls, dark sandy loam and black bog-wallow; red clay subsoil; any size tract, 40 acres up; improved and unimproved; near two towns; two railroads; good schools and churches. Prices right. Terms reasonable. Southwestern Development & Land Co., San Antonio and Houston, Texas.

ZAVALLA COUNTY—3300 acres, with small house, barns, two good wells, windmills; contains 400 acres tillable land. You cannot buy land anywhere near this for less than \$10 per acre. Our price is only \$6.50 per acre, and we give you terms. Petty & Bondreux, City National Bank Bldg., San Antonio, Texas.

SAN ANTONIO, UVALDE & GULF RAILROAD, now building, will open the finest fruit and truck growing sections in the State. Strong flow of artesian water at shallow depth. We can supply small irrigated farms or colonization tracts. Opportunity to double your money within year. West Texas-Mexico Land Co., San Antonio, Texas.

VIRGINIA

FOR SALE—Rich garden lands close to Norfolk and best markets; rail and water transportation; price reasonable; terms easy. Address Owner, 1221 Bank of Commerce, Norfolk, Va.

WEST VIRGINIA

BEARING APPLE ORCHARDS, orchard land, timber and mountain land for sale in West Virginia's famous fruit belt.

5000 acres choice fruit land, 1/4 mile from main line B. & O. R. R.; 1/4 mile from Western Maryland. Great opportunity. J. Walter O'Boyle, Bond Building, Washington, D. C.

WORN-OUT RUBBER BELTS WANTED

WANTED—Discarded worn-out rubber belts and rubber-belt scrap; wide discarded leather belts. Atlantic Manufacturing Co., Wilmington, Del.

WROUGHT IRON FOR SALE

GUADALUPE COUNTY offers the wrought iron in a King arch span 175 feet in length for sale; will be taken down uncut; bridge one mile from railroad station. Address J. M. Woods, County Judge, Seguin, Texas.

FINANCIAL

FOR SALE—First mortgage real estate loan, secured by best-located acreage along the Interurban Line in the famous Houston-Galveston district, close to Houston. Address Box 385, Houston, Texas.

FOR SALE—First mortgage 7% real estate bonds, secured by well-located Harris county property on Interurban Line. Address Box 1741, Houston, Texas.

FOR SALE—I have for sale 8 per cent. mortgages on improved farms in North Louisiana; none better. W. A. Jones, authority on North Louisiana Lands, Shreveport, La.

FIRST MORTGAGE LOANS on Texas farm and ranch securities, based on 40% to 50% of actual value, unquestionably represent the highest security obtainable today. We have on hand well-secured first mortgage real estate loans taken with our own funds, bearing from 6% to 7% semi-annual interest, in amounts of \$500 and up. If you have idle money, investigate these securities. We personally inspect the property, examine the titles, know the men, and will collect the interest each year, also the principal when due, without charge to you. We lend money for individuals as well as mortgage companies. References: Any bank in San Antonio, or Bradstreet and Dun. Write Gilliam, Henry & Austen, Land Mortgage Bankers (unincorporated), Suite 633-640 Bedell Building, San Antonio, Texas.

\$300,000 FIRST MORTGAGE 8% BONDS for sale, secured by 10,000 acres fine onion and fruit land in South Texas; money to be used for developments and machinery; land when put under irrigation and cultivation will produce \$250 to \$500 per acre each year. Part or all can be had. Write to F. F. Bickelbach, El Paso, Texas.

FIRST MORTGAGE LOANS cautiously selected in Texas; 2 to 5 years, 8%, \$1000 to \$5000, to suit investors. Any well-informed man can tell you of the substantial values in Texas and the Southwest. This company was especially organized for this line of business and we give it most careful attention. First Mortgage Trust Company, San Antonio, Texas.

MORTGAGE LOANS, carefully selected, on good cotton and corn farms in Southern Oklahoma; 5-year, 8%, \$250 to \$2500, to suit investors. This company's population, 25,000; assessed values, \$10,000,000; one of largest cotton producers. Can place your money very safely; 25 years' experience; 10 years bank cashier here; intimately acquainted with lands, people, conditions; abundant references; circular. Write J. G. James, Rof, Okla.

PATENT ATTORNEYS

EUGENE C. BROWN, ENGINEER and Patent Lawyer, Suite 40 Victor Building, Washington, D. C. Member Bar U. S. Supreme Court. Patents and Trademarks. Inventions are considered both from Engineering and Legal standpoints in my prosecution of patents. An experience of over 9 years as Examiner in U. S. Patent Office and over 6 years as Patent Expert in important patent suits are my especial qualifications. Reports upon validity and infringement. Send sketch of invention for advice.

INVENTIVE GENIUS deserves reward. Patent does you no good unless sold. We undertake sale of patents obtained through our attorneys. Are splendidly located and equipped. Adam Fisher Mfg. Co., 82-14, St. Louis, Mo.

PATENTS THAT PROTECT. Careful, honest work in every case. Patent your ideas; they may enrich you. 64-page book free. Fitzgerald & Co., 817 F street, Washington, D. C. Established 1878. Send for our book.

FIND OUT FOR YOURSELF what to invent and how to protect it. My book, "Inventors' Universal Educator," covers the matter from A to Z; also gives 600 mechanical movements and 50 perpetual motions. Price \$1, postage free. Money returned if not more than satisfactory. F. G. Dieterich, 655 Ouray Bldg., Washington, D. C.

PATENTS THAT PROTECT AND PAY. Advice and books free. Highest references. Best results. Promptness assured. Send sketch or model for free search of Patent Office records. Trade-marks registered. Watson E. Coleman, Patent Lawyer, 624 F. St., Washington, D. C.

PATENT YOUR IDEAS.—\$100,000 offered for one invention, \$5000 for another; book, "How to Obtain a Patent" and "What to Invent," sent free; send rough sketch for free report as to patentability; patent obtained or fee returned. We advertise your patent for sale at our expense. Chandie & Chandie, patent attorneys, 975 F street, Washington, D. C.

PATENTS secured or Fee returned. Send sketch for free report as to patentability. Guide book and what to invent, with valuable list of inventions wanted, sent free; \$1,000,000 offered for one invention; \$16,000 for others. Patents secured by us advertised free in World's Progress; sample free. Victor J. Evans & Co., Washington, D. C.

PROPOSALS

PUBLIC BUILDINGS.

CONSTRUCTION BONDS

MISCELLANEOUS.

GOVERNMENT PROPOSALS

TREASURY DEPARTMENT, Office of the Supervising Architect, Washington, D. C., June 21, 1912. Sealed proposals will be received in this office until 3 o'clock P. M. on the 24 day of August, 1912, and then opened, for the construction (including plumbing, heating apparatus, gaspiping, electric conduits and wiring, and interior lighting fixtures) of the extension, remodeling, etc., of the United States postoffice and courthouse at Charlotte, N. C. The extension is two stories and basement, stone faced, of fireproof construction (except roof), and has a ground area of approximately 12,600 square feet. Drawings and specifications may be obtained from the custodian of site at Charlotte, N. C., or at this office, at the discretion of the Supervising Architect. **JAMES KNOX TAYLOR, Supervising Architect.**

TREASURY DEPARTMENT, Office of the Supervising Architect, Washington, D. C., June 24, 1912. Sealed proposals will be received in this office until 3 o'clock P. M. on the 23 day of July, 1912, and then opened, for the construction (including plumbing, gaspiping, heating apparatus, electric conduits and wiring, interior lighting fixtures and approaches) of the United States Post-office at Hanover, Pennsylvania. The building is of one story, basement and mezzanine, and has a ground area of approximately 4000 square feet; fireproof construction throughout; stone facing and copper roof. Drawings and specifications may be obtained from the custodian of site at Hanover, Pa., or at this office, at the discretion of the Supervising Architect. **JAMES A. WETMORE, Acting Supervising Architect.**

U. S. ENGINEER OFFICE, Galveston, Texas, June 19, 1912. Sealed proposals for furnishing about 6000 barrels American Portland cement for Lock and Dam No. 8, Brazos River, delivered at Downs, Texas, will be received at this office until 12 M. July 19, 1912, and then publicly opened. Information on application. **EARL I. BROWN, Major, Engrs.**

U. S. ENGINEER OFFICE, Galveston, Texas, June 19, 1912. Sealed proposals for crushed rock or gravel, delivered at Downs, Texas, will be received at this office until 12 M. July 19, 1912, and then publicly opened. Information on application. **EARL I. BROWN, Major, Engrs.**

NEW BOND OFFERINGS

Notice Bond Sale

Marshall, Texas.
The City of Marshall, Texas, will receive sealed proposals until 12 o'clock M. Tuesday, July 3, 1912, for \$25,000 Street-Paving Bonds, dated July 1, 1912, due 1922, optional after 10 years, interest 5 per cent., payable semi-annually in New York or Marshall.

A certified check for \$500, payable to H. S. Rice, Treasurer, required. The city reserves the right to reject any or all bids.

Address H. S. RICE, Secretary.

\$30,000 Town of Carthage (N. C.) Bonds

Sealed bids will be received by the Town of Carthage, N. C., up to 2 o'clock P. M. July 16, 1912, for the purchase of \$30,000 Carthage, N. C., water and sewerage bonds, payable 30 years from date, in denominations of \$1000 each, dated July 1, 1912, bearing interest at 6 per cent., payable annually on January 1 in each year at the office of Treasurer.

A certified check equal to 10 per cent. of the amount bid, drawn payable to Treasurer of town, will be required to accompany each proposal.

Specifications can be obtained from the undersigned and maps and plans can be seen at the office of the Mayor of said town.

Right is reserved to reject any or all bids. Proposals should be directed to the undersigned.

W. G. JENNINGS, Secretary, Carthage, N. C.

\$200,000 City of St. Petersburg (Fla.), Improvement Bonds

Sealed bids will be received by the City Council at the office of W. F. Divine, City Clerk, until 7 P. M. July 25, 1912, for the purchase of \$200,000 six per cent. Improvement Bonds.

Bids are desired for the whole issue, or any fractional part thereof in amounts not less than \$5000.

These bonds will be of the denomination of \$1000 each, and payable, principal and interest, at the office of the City Treasurer, in St. Petersburg, or in New York city, at the option of the holders, in gold coin of the present weight and fineness.

Due thirty years from date. Interest on said bonds to be paid semi-annually. Bonds to be dated August 1, 1912.

Each bidder is required to accompany his bid with a certified check for \$500.

No bids for less than par value and accrued interest will be entertained.

City reserves right to reject any and all bids. Address

W. F. DIVINE, City Clerk.

\$39,000 Waterworks and Sewerage Bonds

Fort Meade, Fla.

Sealed bids will be received by the Board of Bond Trustees of the Town of Fort Meade, Florida, until noon July 25, 1912, for \$39,000 of waterworks and sewerage bonds, dated July 1, 1912, and payable fifteen to thirty years thereafter, numbered from one to thirty-nine, of \$1000 each, same bearing interest at the rate of 5 per cent. per annum and payable semi-annually on the first day of July and January of each year at the office of the Town Treasurer. These bonds have been validated under the rulings of the Circuit Court of Tenth Judicial Circuit of Florida in compliance with Chapter 6257, Acts of Legislature, 1911, and in accordance with charter of the town created under Chapter 6344 of Statutes of Florida. Proposals shall be made in sealed envelopes and shall be accompanied by a certified check of \$500, payable to the Board of Bond Trustees, as a guarantee of the good faith of the bidder. Bidders are invited to submit form of bond to be used. The Board reserves the right to reject any and all bids. Mark on envelopes "Proposals for water-works and sewerage bonds" and address same to W. E. Arthur, Secretary Board of Bond Trustees.

\$50,000 Twenty-Year 4 1/2% Interest Bonds for Sale

INTEREST PAYABLE ANNUALLY.

Vicksburg, Mississippi.

Principal and interest payable at the American Exchange National Bank, New York City.

Date of issue, June 1, 1912.
Payable serially as follows: \$500 each year for 19 years; the remainder, \$40,500, on June 1, 1932.

Date of sale, Monday, July 15, 1912.
Sealed proposals for the purchase of said bonds should be addressed to A. M. Paxton, City Clerk, Vicksburg, Miss., accompanied by a certified check of an incorporated bank for \$5000, payable to said City Clerk. Such proposals will be received up to 8 o'clock P. M. on Monday, July 15, 1912, when all bids will be opened and considered in the presence of the Mayor and Aldermen.

J. J. HAYES, Mayor, Vicksburg, Miss.

Notice of Bond Sale

Notice is hereby given of the offer for sale of gold coupon bonds of the Town of St. Andrews to the amount of thirty thousand dollars, becoming due and payable as follows: Ten thousand (\$10,000) dollars on August 1, 1922, ten thousand (\$10,000) dollars on August 1, 1932, and ten thousand (\$10,000) dollars on August 1, 1942, all bearing interest at the rate of five per cent. per annum, interest payable annually. The Town Council will receive bids for the purchase of said bonds or any part of same until 9th day of August, 1912, at noon, but reserves the right to reject any or all bids. For further information address C. J. Satterlin, member of Council, Town of St. Andrews. Said notice shall be signed by the Mayor or Town Clerk, who shall fill the blank with a date that will not be less than thirty (30) days from the date of first publication of said notice.

On the day named in said notice the Town Council shall meet at noon for the purpose of opening said bids.

S. J. GAINER, Mayor Town of St. Andrews.

Attest: **J. R. THOMPSON, Clerk of Town of St. Andrews.**

All bids must be accompanied by a certified check for five hundred (\$500) dollars, payable to Town of St. Andrews, Florida.

\$50,000 City of Cartersville (Ga.), Coupon Gold Bonds

Sealed bids will be received by the Board of Commissioners of the City of Cartersville until 2 o'clock P. M. July 25, 1912, for \$50,000 of bonds of said city, as a whole or in lots, for the purpose of providing funds for the purpose of improving and extending its electric-light, gas and water-works plants and improvement of school building.

Said bonds, in the denomination of \$1000 each, to be dated July 1, 1912, and all payable January 1, 1942, with interest at 5 per cent. per annum from July 1, 1912, payable semi-annually on January and July 1 at the office of the City Treasurer in Cartersville, Georgia, principal and interest payable in gold coin.

These bonds have been properly confirmed and validated by the Court, as provided by law, and are exempt from State, county and municipal taxes, and may be registered at the option of the owner.

Cartersville is the county site of Bartow county, one of the wealthiest and most prosperous counties in Georgia. The taxable property in the city is over \$2,700,000. Outstanding indebtedness, \$57,000, and being reduced annually. The value of property owned by the city is about \$100,000.

Certified checks for 5 per cent. of bid must be filed with each bid, payable to G. W. Waldrup, Treasurer, to be returned if bid is registered, and forfeited if bid is not completed.

The Board of Commissioners reserves the right to reject any or all bids.

G. W. YOUNG, Mayor.

June 27, 1912.

Bonds for Sale

The County Commissioners for Montgomery County, Maryland, will receive sealed bids for the purchase of 24 Montgomery county bonds of \$500 each, up to twelve o'clock noon on the 16th day of July, A. D. 1912, at which time the bids will be opened by said Commissioners and the sale consummated to the highest bidder for cash, if in the opinion of the said County Commissioners such highest bid be an adequate price for said bonds.

These bonds are in a series of 24 bonds of \$500 each, aggregating \$12,000, and numbered from one to twenty-four, both inclusive, and two of said bonds, being numbered one and two, both being payable one year after the date thereof, and two of said bonds, in order of their number, being payable each year until the entire issue of twenty-four are fully paid.

These bonds and coupons bear interest at the rate of four and one-half per centum per annum.

Said interest being paid semi-annually on the first day of February and August in each year until the payment of the principal sum.

The principal and interest being payable to the Farmers' Banking & Trust Co. of Montgomery County, at Rockville, Maryland.

Each bid must be accompanied with a certified check for two hundred dollars, made payable to the County Commissioners of Montgomery County, Maryland.

JOSEPH T. WHITE, President of the Board of County Commissioners for Montgomery County, Maryland.

BERRY E. CLARK, Clerk to the County Commissioners for Montgomery County, Maryland.

JOHN A. GARRETT, Solicitor.

Bonds for Sale

The County Commissioners for Montgomery County will receive sealed bids for the purchase of thirty-five Montgomery county bonds of one thousand dollars each, up to twelve o'clock noon on the 16th day of July, A. D. 1912, at which time the same will be opened by said County Commissioners and the sale consummated to the highest bidder for cash, if in the opinion of the said County Commissioners such highest bid be an adequate price for said bonds.

These bonds are in a series of thirty-five bonds of one thousand dollars each, aggregating thirty-five thousand dollars, and numbered from one to thirty-five, both inclusive; one of said bonds, being bond number one, being payable one year after the date thereof, and one of said bonds, in order of their number, being payable in each year until the entire issue of thirty-five are fully paid.

These bonds are coupon bonds and bear interest at the rate of four and one-half per centum per annum. Interest being payable annually on the first day of July in each year until the payment of the principal sum.

The principal sum and interest being payable at the Farmers' Banking & Trust Company of Montgomery County, at Rockville, Maryland.

Each bid must be accompanied with a certified check for two hundred dollars, made payable to the County Commissioners.

By order of the Board of County Commissioners for Montgomery County, Maryland.

JOSEPH T. WHITE, President of the Board of County Commissioners for Montgomery County, Maryland.

BERRY E. CLARK, Clerk to the County Commissioners of Montgomery County.

JOHN A. GARRETT, Solicitor.

BRIDGES

Steel Trestle Bridge

Camden, Ark.

Notice is hereby given that at the eastern entrance to the Courthouse of Ouachita county, Arkansas, in the city of Camden, Arkansas, at the hour of 11 o'clock A. M. on Monday, the 8th day of July, A. D. 1912, I will sell at public outcry, to the lowest responsible bidder, the contract to construct a steel trestle bridge, about four hundred feet in length, on the west side of the Ouachita River, connecting with the bridge now being erected across said river. A general plan may be seen by applying to the undersigned, and detailed specifications must accompany each bid.

M. D. HALE, County Judge.

Steel Bridge

Asheville, N. C.

Sealed proposals will be received by E. W. Patton, chairman Board of Commissioners of Buncombe County, at his office at Asheville, N. C., until 12 M. August 6 for the construction of a steel bridge across Big Ivy Creek, with a single span of 90 feet and approaches of 20 and 34 feet.

Bids are for a completed job open for travel. Contractor to furnish all labor and supplies except lumber for flooring. Terms: One-half on completion and acceptance; balance in one year with 6 per cent. interest. Right reserved to reject any and all bids.

For plans and further information address

J. C. M. VALENTINE, County Engineer, Asheville, N. C.

Reinforced Concrete Bridge

Sealed proposals will be received by Sholtz & Atkinson at the office of D. D. & C. M. Rogers, Engineers, Daytona, Fla., until 1 P. M. July 11, 1912, for the construction of a 4-pile bent reinforced concrete bridge, 30 feet wide and about 1800 feet long, with draw center and abutments; also about 20,000 cubic yards fill for approach and rip-rap for same. All materials will be furnished contractor.

Plans can be seen and specifications and blank form of proposal procured at office of Engineers, 417 North Beach St., Daytona, Fla. Certified check for 3 per cent. of amount of proposal will be required.

The right to reject any or all bids is reserved.

D. D. & C. M. ROGERS, Engineers for Sholtz & Atkinson.

Bridges

Dillon, S. C.

The County Board of Commissioners for Dillon County will receive bids until noon of Wednesday, July 10, for furnishing all material and labor and constructing two reinforced concrete bridges across Little Pee Dee River, plans for which will be on file with the Clerk of Board by July 1. Alternate bids using steel superstructure on same reinforced substructure, accompanied by complete plans of steel work, will be considered. Spans of bridges are 84 feet and 45 feet, later being on 45 degrees skew. Right reserved to reject any and all bids.

R. L. MOODY, Clerk, EDWIN M. WAYLAND, Engineer.

PAVING

Sidewalk Construction

Athens, Ala.

Bids will be received at the Mayor's office, in the town of Athens, Alabama, for the grading, furnishing the material and construction of 8000 sq. yds. of cement sidewalk, 725 sq. yds. of vitrified brick crosswalk and 650 sq. yds. of crushed limestone screening sidewalk, until 8 P. M. July 5, 1912, when the same will be publicly opened and read. Bids must be accompanied by a certified check of \$300.

The right to reject any and all bids is reserved.

LIFFORD COLE, City Clerk.

Sidewalks, Etc.

NOTICE TO CONTRACTORS.

Sealed proposals for the construction of Cement Sidewalks, Brick Street Crossings and Appurtenances will be received by the undersigned up to 8 o'clock P. M. on the 19th day of July, 1912. The work consists of approximately 20,000 sq. yds. cement walks, 1700 sq. yds. brick street crossings and 10,000 cu. yds. grading. Plans and specifications may be seen at the office of the City Engineer, Meridian, Mississippi.

No bid will be considered unless accompanied by a certified check on some solvent bank of Meridian, Miss., for not less than 5 per cent. of the amount of bid as evidence of good faith.

The Mayor and Boards of Councilmen and Aldermen expressly reserve the right to reject any or all bids, or to accept bids separately as to any or all items in the schedule of quantities, or to accept any bid in the aggregate.

Done by order of the Boards of Councilmen and Aldermen this 25th day of June, 1912.

(Signed) **C. W. O'LEARY, City Clerk.**

WATERWORKS AND SEWERS

Bids on Water Purification Plant, Dallas, Texas

Bids will be received at the office of the City Secretary, Dallas, Texas, until July 12, 1912, 2 P. M., for building and constructing a Water Purification Plant at Dallas, Texas, on the site known as the Turtle Creek Pumping Station, situated on the switch of M. & T. Ry., about one and one-half miles from the City Hall.

A deposit of \$50 (fifty dollars) will be required to get a set of plans and specifications. The check for \$50 will be returned to bidders upon return of plans and specifications in good condition. Each bid must be accompanied with a certified check of fifteen thousand dollars, payable to the City of Dallas, said checks to be returned to the unsuccessful bidders upon the award of contract, and to the successful bidder after the contract and bond is executed and accepted by the City of Dallas. A bond in the sum of one hundred thousand dollars must be furnished by the successful bidder, executed by an approved surety company and by a resident of Dallas county, Texas.

Plans and specifications can be secured at the office of Jan. H. Fuertes, 140 Nassau St., New York, or at the office of the City Secretary, Dallas, Texas.

All bids must be addressed to J. B. Winlett, City Secretary, Dallas, Texas. Mark all envelopes "Bids on Water Purification Plant." The City of Dallas reserves the right to reject any or all bids.

WATER

Water

Sealed

Board of

Carthage,

clock P.

term of w

town.

Specifica

designed

at the offic

A certifi

the amount

Treasurer

accompany

Bids sho

signed.

Right is

Wa

Sealed b

Va., until

following:

1 72x16

1 12x16

1 200-200

1 100-100

44 Hydr

550 tons

8 miles

Address

Or J. B.

Propos

Elect

age,

Sealed p

and of Smith

1912, for bu

light plant

The Wat

tem will b

The work

Return Tu

the and th

the Pump

and Clear

about 3 1/2

Water Pipe

The Sewe

of Pipe Se

der, and a

Plans an

the office o

and at the

lete, N. C.

proposal,

Engineer a

A full se

by the Eng

prints, 25c.

No bid w

sided by a

the bid, a

The right

bids.

Engineer

GILBE

Salt

CITY C

Bids will

water, To

the purcha

described m

All the se

tion of the

of Sweetwa

15,000 feet

3,000 feet

6,500 feet

7,720 feet

750 feet

450 feet

Bidders w

plete speci

scribing all

ments, plan

a part of t

accepted.

Bids must

Secretary,

accompanied

note that i

chambers, s

others will

Bids sent

consideratio

Bids must

State c

1. State c

2. Time of

3. Terms.

4. Weight

5. Full sp

6. Any ex

7. Make r

8. Enclos

9. Bid on s

PROPOSALS

PUBLIC BUILDINGS,

CONSTRUCTION BONDS

MISCELLANEOUS.

WATERWORKS AND SEWERS

Water and Sewerage Construction

Sealed proposals will be received by the Board of Commissioners of the Town of Carthage, N. C., until July 16, 1912, at 2 o'clock P. M., for the construction of a system of water-works and sewerage in said town.

Specifications can be obtained from the undersigned and plans and maps can be seen at the office of the Mayor of said town.

A certified check equal to 10 per cent. of the amount of bid, drawn payable to the Treasurer of said town, will be required to accompany each bid.

Bids should be addressed to the undersigned.

Right is reserved to reject any or all bids.

W. G. JENNINGS,
Secretary, Carthage, N. C.

Waterworks Equipment

Chase City, Va.

Sealed bids will be received at Chase City, Va., until 3 o'clock P. M. July 8, 1912, on the following:

- 1 2x16 Boiler.
- 1 750,000-gallon Compound Pump.
- 1 200-gallon Triplex Pump.
- 1 100,000-gallon Tank on 100-foot Tower.
- 4 Hydrants and Valves.
- 50 tons 6" and 8" Pipe.
- 6 miles Sewer Pipe.

Address
W. H. JEFFREYS, Mayor.
Or J. B. McCRARY CO., Engineers,
Atlanta, Ga.

Proposals for Water-Works, Electric Lights and Sewerage, Smithfield, N. C.

Sealed proposals will be received by the Mayor and Board of Aldermen of the Town of Smithfield, N. C., until 2 P. M. July 31, 1912, for building a Water-works and Electric Light Plant and a system of Sewerage.

The Water-works and Electric Light system will be combined in one Power Plant. The work will embrace Fireproof Building, return Tubular Boilers, Generator and Engine and Lighting system, Steam and Electric Pumps, Mechanical Filter, Coagulating and Clear Water Basins, Pole Lines, and about 3 1/2 miles of 6 and 8-inch Cast-Iron Water Pipe laying with Hydrants and Valves. The Sewerage will consist of about 4 miles of Pipe Sewers 8 inches to 12 inches diameter, and appurtenances.

Plans and specifications will be on file at the office of the Mayor of Smithfield, N. C., and at the office of the Engineer at Charlotte, N. C. Copies of specifications, form of proposal, etc., may be obtained from the Engineer at Charlotte, N. C.

A full set of blueprints will be furnished by the Engineer on payment of \$5; single prints, 25c. each.

No bid will be considered unless accompanied by a certified check for 5 per cent. of the bid, as an evidence of good faith.

The right is reserved to reject any or all bids.

JAS. A. WELLS, Mayor.

H. I. SKINNER, Clerk.

GILBERT C. WHITE,
Charlotte, N. C.

Salt Glazed Sewer Tile

CITY OF SWEETWATER, TEXAS.

Bids will be received by the City of Sweetwater, Texas, and opened on July 10, 1912, for the purchase by said city of the following described material:

- All the sewer pipe required in the construction of the sewer system in and for the City of Sweetwater, Texas, being approximately—
- 15,570 feet 6-inch Salt Glazed Vitrified Pipe.
- 9,600 feet 8-inch Salt Glazed Vitrified Pipe.
- 6,350 feet 10-inch Salt Glazed Vitrified Pipe.
- 7,730 feet 12-inch Salt Glazed Vitrified Pipe.
- 750 feet 15-inch Salt Glazed Vitrified Pipe.
- 650 feet 18-inch Salt Glazed Vitrified Pipe.

Bidders will also furnish with bids complete specifications and blueprint fully describing all items bid upon. These statements, plans and specifications will be made a part of the purchase contract if the bid is accepted.

Bids must be addressed to L. S. Polk, City Secretary, Sweetwater, Texas, and must be accompanied by every statement and guarantee that it is desired to make to the purchasers, said statement to be in writing; no others will be received.

Bids sent in by mail will receive the same consideration as though presented in person.

Bids must be made as follows:

1. State delivered price on each item bid upon.
2. Time of delivery.
3. Terms.
4. Weight of each item.
5. Full specifications covering every item bid upon.
6. Any explanation that it is desired to be made regarding the items bid upon.
7. Make bids and specifications in duplicate.
8. Enclose bid in separate envelope, marked "Bid on sewer pipe, to be opened July 10, 1912."

Right reserved to reject any and all bids.

L. S. POLK, City Secretary,
Sweetwater, Texas.

PUBLIC BUILDINGS

Rebuilding Courthouse

NOTICE TO CONTRACTORS.

Sealed proposals will be received until 9 o'clock A. M. July 15, 1912, by the Board of Supervisors of Yalobusha County, Mississippi, at the Chancery Clerk's office at Water Valley, Mississippi, for the rebuilding of the courthouse at Water Valley, Mississippi, according to plans and specifications now on file in the Chancery Clerk's office in Water Valley, Mississippi.

For information apply to P. J. Krouse, Architect, Meridian, Mississippi, or J. G. McGowan, Secretary Building Committee, or R. Spearman, Clerk Board Supervisors, Water Valley, Mississippi.

Sealed Proposals for Erecting and Completion of a Court-house Building for Rowan County, North Carolina

TO BE ERRECTED IN SALISBURY, NORTH CAROLINA, ON A LOT ADJOINING THE PRESENT COURTHOUSE AND TO THE NORTH OF SAME.

1. Sealed proposals addressed to the Chairman of the Board of Commissioners of Rowan County, North Carolina, will be received up to twelve o'clock noon July 8, 1912, for furnishing all labor and material for the erection and completion of a two-story-and-basement Courthouse, all as more minutely shown and described in the plans and specifications on file and open for inspection at the office of the Board of County Commissioners, Salisbury, North Carolina, and at the office of A. Ten Eyck Brown, Architect, 607-610 Forsyth Building, Atlanta, Ga. All bids to be endorsed "Proposals for Erection and Completion of a Courthouse for Rowan County, North Carolina, at Salisbury, North Carolina."

2. Copies of drawings and specifications may be obtained from the above Architect upon deposit of a certified check for \$25 for each set. Said check to be returned to the maker upon the return of the drawings and specifications in good condition and the submission of a bona-fide bid, as hereinbefore and hereinafter called for. Subcontractors will be furnished with copies of drawings and specifications upon deposit of a certified check for \$10, 50 of which will be returned upon receipt of the drawings and specifications in good condition, the remaining \$5 being held to cover expense of reproduction.

All bids must be submitted on special proposal blanks furnished by the Architect or they will not be considered, and accompanied by a certified check for two per cent. of total amount of bid, made payable to the Chairman of the Board of County Commissioners of Rowan County, as a guarantee that the successful bidder will enter into a contract according to said plans and specifications and execute a bond for double the amount of contract within ten days after the notification of the acceptance of the bid, failing which said certified check shall become forfeited to the Board of County Commissioners of Rowan County, North Carolina, as liquidated damages.

3. Bidders will be required to furnish sufficient evidence of their ability and experience in this class of work, and must possess proper resources to carry out the work satisfactorily to the Board of County Commissioners and the aforesaid architect.

4. This work for which above proposals are requested must commence on the site not later than July 15, 1912, and be completed within the contract time as specified in the contract with the successful bidder.

5. Payments will be made on the certificate of the Architect on the first day of each and every month during the time of the contract, being eighty-five per cent. of the value of the work furnished and erected, provided the contractor has made application over his signature for said certificate on or before the 27th day of the preceding month, and that schedule of material and labor in place has been furnished with the estimate. A certificate will be given by the Architect for the balance of fifteen per cent. upon completion of the contract in conformity with plans and specifications, application having been made as above.

6. Each bid shall be signed with the full name of the bidder, and if a company or corporation, by the full name of each partner or officer.

7. The Board of County Commissioners of Rowan County, North Carolina, reserve the right to reject any or all proposals.

8. By order of the Board of County Commissioners of Rowan County, North Carolina.

(Signed) P. B. BEARD,
Chairman Board of Commissioners
Rowan County, N. C.

Attest:
E. H. MILLER,
Clerk Board of Commissioners
Rowan County, N. C.

MISCELLANEOUS

Building

NOTICE TO CONTRACTORS.

Sealed proposals for building contract and contracts for heating, plumbing and wiring for Educational Building located at the University, Mississippi, will be received until 10 o'clock A. M. Thursday, July 27, 1912, at University P. O., University, Miss., and then opened. Plans to be had from office of Ben Price, 518-19 Empire Building, Birmingham, Ala., on and after June 29, 1912. Fifteen-dollar (\$15) deposit required for plans, guaranteeing their return within two weeks from date of issue. Three-hundred-dollar (\$300) certified check to accompany proposal on building contract; seventy-five-dollar (\$75) certified check each for proposal on heating, plumbing and wiring. Right reserved to reject any or all bids. Address

O. F. LAWRENCE,
Secy. Board of Trustees,
University P. O., Miss.

Gas Franchise For Sale

St. Petersburg, Fla.

Sealed bids will be received by the City Council of the City of St. Petersburg, Fla., at the office of W. F. Divine, City Clerk, until 7.30 P. M. July 3, 1912, for the purchase of Gas Franchise.

Each bidder is required to accompany his bid with a certified check for \$1000, and each must comply with the specifications of the franchise. Copy of franchise will be furnished on application.

W. F. DIVINE,
City Clerk.

Filter Plant

Culpeper, Va.

Sealed proposals for filter plant will be received by the Town Council of Culpeper, Va., on or before 12 o'clock noon July 12, 1912, for furnishing all labor and materials for the construction of a filtration plant capable of delivering 1,000,000 gallons per day of 24 hours, including brick filter-house, filters, chemical-feed devices and all pipe work.

Each proposal must be accompanied by a certified check for \$500, made payable to the City Attorney, conditioned if a bid is accepted, contract will be entered into and the performance of same secured within 10 days after notification of acceptance of bid. In case bid is accepted and contract entered into, check will be returned.

No bid will be received after the hour and date mentioned, and no bid will be allowed to be withdrawn after the date and hour set.

Successful bidder will be required to furnish bond of an acceptable surety company in the full amount of contract price.

General instructions to bidders will be furnished upon application.

The right is reserved to reject any or all bids.

For further information address E. E. Johnson, City Attorney, Culpeper, Virginia.

Drainage

The State of Texas,
County of Matagorda, }

Notice is hereby given that on the 12th day of August, A. D. 1912, at the Courthouse in Bay City, Matagorda county, Texas, bids will be received for the construction of Matagorda County Drainage District No. 2 of Matagorda County, Texas, the work to be done as set out in the report of the engineer of said district, filed in the office of the Clerk of the County Court of Matagorda County, Texas, a copy of which report, with all necessary plans, profiles and specifications, will be furnished the respective bidders by H. Black, Engineer in charge of said district, Markham, Texas. And it is required that the bidders on the construction work of said district must furnish a bond buyer to purchase bonds of this district at par and accrued interest. It is also required that a certified check to the amount of 5 per cent. of the amount of the contract price, the same being \$234,990.13, must be deposited with the Chairman of the Board of Commissioners of said district, A. M. Anderson, at the time said party, firm or corporation desires to bid on said work, the said sum to be forfeited to the said district in case the bidder refuses to enter into a proper contract, if his bid is accepted, within ten (10) days from date thereof.

Any and all bids may be rejected if deemed too high.

Witness our hands this 25th day of June, A. D. 1912.

A. M. ANDERSON,
Chr. Board of Commrs. Mat. Co. Drainage
Dist. No. 2, Matagorda County, Texas.

SIG. BROWN,
Secy.

Notice to Contractors of the Letting of Drainage Contract

Notice is hereby given that sealed bids will be received by the Board of Commissioners of the Camden Run Drainage District, at the office of Dr. Samuel W. Gregory, in Elizabeth City, N. C., until the hour of two o'clock P. M. on Tuesday the 23d day of July, 1912, for the construction of about sixteen (16) miles of drainage canals for said drainage district, according to plans and specifications now on file in the office of the Clerk of the Superior Court of Camden County, N. C. Said canals vary from six (6) to about eleven (11) feet in depth, from fourteen (14) to thirty (30) feet in bottom width, with bank slope of one-half to one. The engineer's estimate of the cost of the work is: Clearing 15.7 miles right of way, \$200 per mile; excavating 538,132 cubic yards of earth at 8c.; building bridges, \$225; total, \$46,415.56.

Said work must begin not later than October 1, 1912, and shall be completed within sixteen (16) months from that time. Each bid must be accompanied with a certified check for five hundred dollars (\$500), payable to the order of the above Board of Commissioners, and the successful bidder will be required to enter into a contract with said Board of Commissioners within ten days after said contract is awarded, and shall execute a bond for the faithful performance of such contract, with sufficient sureties to the satisfaction of said Board, in favor of said Board of Commissioners, for the use and benefit of said Drainage District, in an amount equal to 25 per cent. of the amount of his bid, or forfeit the \$500 deposited with his bid, as liquidated damages. All other checks will be returned the day the contract is awarded. Bids exceeding the engineer's estimate cannot be considered. The Board reserves the right to reject any and all bids. Address all communications to S. W. Gregory, Elizabeth City, N. C., Secretary of the Board of Commissioners of the Camden Run Drainage District, Elizabeth City, N. C.

Sealed Proposals for Furnishing and Installing Wood and Metal Furniture in Court-house for Rowan County, North Carolina

1. Sealed proposals addressed to the Chairman of the Board of County Commissioners of Rowan County, North Carolina, will be received up to twelve o'clock noon July 8, 1912, for furnishing and installing in place wood and metal furniture as more minutely described and shown in the plans and specifications for same on file and open for inspection at the office of the said Board of County Commissioners at Salisbury, North Carolina, and at the office of A. Ten Eyck Brown, Architect, 607 to 610 Forsyth Building, Atlanta, Ga. Proposals for the wood furniture will be made separately and shall be endorsed as follows: "Proposals for furnishing and installing wood furniture in the Rowan County Courthouse, Salisbury, North Carolina." Proposals for the metal furniture shall be made separately and shall be endorsed as follows: "Proposals for furnishing and installing metal furniture in the Rowan County Courthouse, Salisbury, North Carolina."

2. Copies of drawings and specifications may be obtained from the above Architect on application in the discretion of said Architect.

3. All bids must be submitted as directed by the Architect and accompanied by a certified check for two per cent. for each proposal, made payable to the Chairman of the Board of County Commissioners, as a guarantee that the successful bidder will enter into a contract according to said plans and specifications and execute a bond as called for within ten days after notification of acceptance of bid, failing which said certified check shall become forfeited to the Board of County Commissioners of said County as liquidated damages.

4. Payment for each of the above classes of work will be made upon the certificate of the architect within thirty days after completion and acceptance of same by said architect.

5. Each proposal shall be signed by the full name of the bidder, and if a company or corporation, by the full name of the partners or officers.

6. The Board of County Commissioners of Rowan County, North Carolina, reserve the right to reject any or all proposals.

7. By order of the Board of County Commissioners of Rowan County, North Carolina.

(Signed) P. B. BEARD,
Chairman Board of Commissioners
Rowan County, N. C.

Attest:
E. H. MILLER,
Clerk Board of Commissioners
Rowan County, N. C.

Special Advertisements of General Interest.

REWARD

Our efforts by giving us your work. We make
More Plumbers' Brass Ferrules than any Manufacturer in America.
We are also prepared to make
All Kinds of Brass, Bronze and Aluminum Castings
Any size from one ounce to one ton. Phone, Write or Call.
KING MANUFACTURING CO. BIRMINGHAM, ALA.

GEORGIA FARMS and MANUFACTURING SITES FOR SALE AT BARGAINS

LET US LOCATE YOU.

G. R. MOORE & CO. 1409 Candler Building ATLANTA, GA.

**N&W
RY.**

FURNITURE FACTORY WANTED
A progressive city of four thousand population, situated in Piedmont Virginia, and on two lines of railway, offers exceptional opportunities for the establishment of a furniture factory. This location is in the heart of a large manufacturing district, where a number of furniture plants have located and are making money. Abundance of timber, good cheap white labor, excellent transportation facilities, low taxes, cheap electric power and a climate unexcelled. To a party having some capital that understands the business, a large amount of local capital would be subscribed. If interested, refer to File M-247.

**N&W
RY.**

KNITTING MILL WANTED
A city of five thousand population offers a location for the establishment of a knitting mill. The city is situated in southwest Virginia, high altitude, good water and an abundance of female labor. A building suitable for the purpose, with boiler, engine, sidetrack and other appliances may be had on reasonable terms. If party interested can command some capital and has good credentials, local capital can be interested. No better location in Virginia. For further information refer to File M-3370.

If you are seeking a location for the establishment of an industry, regardless of its character, then you should investigate the towns and cities along the Norfolk & Western Railway in Virginia, North Carolina, West Virginia, Maryland and Ohio. Cheap fuel, best of transportation facilities, abundance of labor, low taxes, excellent climate. For information regarding the above or any other proposition, write F. H. La Baume, A. & I. Agent, Roanoke, Va.

A Wonderful Opportunity

The perfectly equipped and modern fence factory of The Farmers Fence Company of Bellefontaine, Ohio, will be sold July 20, 1912. This plant has complete machinery and power plant for both the manufacture of farm fence and farm gates. The buildings contain 20,000 square feet of floor surface and the property includes not only eight full-sized town lots but 2 17/100 acres of land in addition; five modern, perfect and complete fence looms with a power plant consisting of eight motors, a modern electric welding machine, and with all a good-will extending throughout the Central and Western States. As a going concern it is worth \$100,000, and will probably sell for one-half of that.

Bellefontaine is a manufacturing town with a population of ten thousand, one of the healthiest places in which to live in the State, contains three railroads and Ohio Electric Traction line; it is a town without saloons, known as the city of churches and schools, and contains the best water in the State. It owns all of its own public utility plants and furnishes its manufacturers electricity for power at very low rates. This is a modern plant and furnishes a rare opportunity for a profitable and safe investment.

ADDRESS

I. N. ZEARING

Bellefontaine, Ohio

I OFFER FOR IMMEDIATE SALE A Planing Mill and Stock of Lumber

The mill is well equipped and advantageously located to handle milling in transit business, and especially adapted for the manufacturing of box lumber. Fine opportunity for a man with moderate means to secure a paying proposition. Inquiries promptly answered.

**W. B. WILLIAMSON, Receiver,
Mt. Mitchell Lumber Co.
Asheville, N. C.**

OFFICES FOR RENT

To Engineers and Manufacturers

Temporary or Permanent Offices completely furnished can be rented in the most desirable building in New York, at prices ranging from \$15.00 to \$40.00 per month. All facilities—Private Phone, Stenographer, Typewriters, all Engineering Journals, Directories, etc.

Address **MANUFACTURERS' LIBRARY**
Hudson Terminal Building, 50 Church Street
NEW YORK, N. Y.

ASSETS REALIZATION COMPANY

CAPITAL, - \$10,000,000

Finances important established enterprises fundamentally sound but hampered by shrinkage of quick assets. Special facilities for investigation and supervision.

CORRESPONDENCE INVITED

NEW YORK PHILADELPHIA
25 Broad Street Lafayette Building
CHICAGO
First National Bank Building

The New South Development Company

This company is being formed for the purpose of reclaiming the unused farm lands of the South, and presents great financial opportunities. If interested, write

H. R. WRIGHT

920 Stephen Girard Bldg.

PHILADELPHIA, PA.

Ring Spinning Cotton Plant FOR SALE

A complete ring spinning cotton plant. Must be sold. Address
SCHADEWALD MILLS,
3rd and Huntingdon Sts. Philadelphia, Pa.

PHOSPHATE LAND FOR SALE

300 ACRES in woods in Columbia County, Fla., one mile from Fort White. Railroad running through tract and immediately surrounded by Phosphate Plants on all sides. Rich in Phosphate Rock. Been prospected thoroughly several times; finds rich; but local parties trying to buy at joke prices. Write to
CHAS. CROSLAND, Bennettsville, S. C.

LOOK!

The Mercer Electric Railway Grade

from the City of Princeton, W. Va., to the town of Athens, is for sale, and will be sold at a bargain. For terms apply to

JOHN LILLY, Sec., Athens, W. Va.

BRICK PLANT IN CENTRAL FLORIDA FOR SALE

Now operating to full capacity. Inexhaustible clay deposit. Good-paying investment, but present owner has good reasons for wishing to sell. Address

"BRICK PLANT,"
Care Manufacturers Record.

BRICK BUILDING FOR RENT

One desirable corner brick building (just completing), well ventilated, one hundred feet long by thirty feet wide, built especially for pants or shirt factory or knitting mill. (Railroad track running to building; unload cars in house.) No competition for either. Machinery can be operated by electricity, with power from Bluff Falls at a cost as low as anywhere. The location is the best on principal street of city. For further information apply

M. B. SMITH, Cheraw, S. C.

Power Equipment For Sale

One 100 H. P. Ball Engine, direct connected 50 K. W. two-phase 60-cycle Westinghouse Generator, Exciter and Switchboard Panel. This unit is as good as new. For sale CHEAP.

THOS. C. BASSHORE CO.,
28 Light St., Baltimore, Md.

Engines and Compressor For Sale

One 45 H. P. Erie City Side-Crank Engine.
One 150 H. P. Atlas Heavy-Duty Side-Crank Engine.
One 10x12x10 Hall Air Compressor.
One 18x36 Frick Corliss Engine.
All the above machinery in A-1 condition.

THOS. C. BASSHORE CO.,
28 Light St., Baltimore, Md.

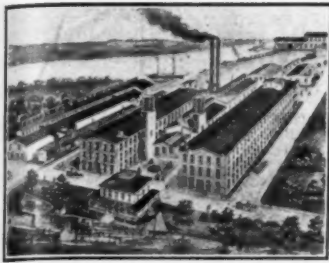
CLASSIFIED OPPORTUNITIES

This department of the Manufacturers Record, as the name implies, is a collection of business opportunities of every description arranged in classified form for the convenience of our readers so that they can quickly locate any particular opportunity in which they may be interested, whether they are seeking a position, agent or employee, investments of various kinds such as city properties, timber and cut-over lands, mineral and coal lands, farming and fruit lands, new location for a factory or home, purchasers for industrial and properties of all kinds.

This department is a market place where buyer and seller, employer and employee, capitalist and those offering investments can meet to their mutual advantage and profit, and it will pay those who may or may not be interested to give these columns a close study each week on account of the large and constantly changing variety of opportunities published in this department.

See pages 96 and 97 this week.

COTTON OIL AND FIBRE PLANT FOR SALE



Eleven acres, located at Berkley (Norfolk, Va.).

Riparian rights, 300 feet front on Elizabeth River, arm of Chesapeake Bay.

Sidings connecting with all railroads.

Artesian wells in addition to city water.

Sewers.

Two and one-third acres of floor space.

Electric drive throughout.

Automatic sprinklers, fire pump, tanks and cisterns, effecting low insurance rates.

600 H. P. Boiler capacity. Feed-water Heater and Pumps.

45 K. W. Dynamos and Engines.

100-ton Cottonseed Oil Mill, 6-press outfit.

200-barrel Oil Refinery.

50-ton Hull Plant, equipped with Foss Attrition Mills, Motors, Mixers, Cyclones and Linters.

Two Gins. Revolving Presses, Separators, Conveyors and all equipment.

Feed Grinder and Mixer.

One three-story brick building, 46x200 feet, available for other lines of manufacture.

Price reasonable for a going concern.

Cuts and description on request. Address

Virginia Fibre Corporation

NORFOLK, VA.

Kaolin Lands

FOR SALE

About two thousand acres of kaolin lands, located at Seivern, S. C., Aiken County, on the line of Southern Railway. This kaolin is a high grade and in many places about thirty feet strata and only about five or ten feet from the surface, and there is any quantity of purest spring water directly at the mines. The owners of this property expended about three hundred thousand dollars for a railroad of thirty miles, which runs directly into the property. This road is now owned and operated by the Southern Railway Co. For further information address

KAOLIN MINES

Key Box 859 Charleston, S. C.

115,000,000 Feet Pine Timber and Cypress in North Carolina

Together with a new and complete saw-mill, drykila, planing mill, and complete tramroad with enough rail to log entire tract. Ample locomotives. Timber is well located, and 100,000,000 feet of additional timber is controlled by the situation to be bought as needed and controlled by tramroad and the mill. As principal owner resides a long ways from property, is in ill-health and wants to go to Europe, and no practical saw-mill man interested in this, has decided to sell at most attractive prices. Full particulars, write us.

ALBERT FENDIG & CO., Brunswick, Ga.

Slack Barrel Heading Mill

FOR SALE OR TRADE.

We have at Oblon a complete Slack Barrel Heading Mill, consisting of a Hill Steam Drag Saw, one Greenwood Bolting Saw, Gerlach Heading Sawing Machine, Automatic Saw Grinder, one 50 and one 40 H. P. S. & G. Engine, two 60 H. P. Boilers, Drykila holding 200,000 pieces of stock, has 10,000 ft. of one-inch pipe, two Planers, two jointers, one Rounder, complete Filing Room Outfit, and many other appurtenances not mentioned. Have plenty of timber to go with this mill and prices are good. Would sell or lease for cash or credit, or buy the products. Address

H. FORCUM & CO., Oblon, Tenn.

FORTUNES

Have been made in the **CAST IRON SOIL PIPE Business**

By virtue of unusual circumstances I have for sale one of the best equipped plants in the South. Capacity 8000 tons per year. Can be increased to 12,000 tons with comparatively small amount of money. An unusual opportunity for some large Jobber of Plumbing Supplies.

No information given except to responsible parties, and in strictest confidence.

Address SOIL PIPE

Care Manufacturers Record.

PLANT SALE

J. G. WHITE & COMPANY, Inc.

Engineers-Contractors

43 Exchange Place, NEW YORK, N. Y.

One Lawrence 6" Direct-Connected Centrifugal Pump and Engine same base, with fittings, \$200.
One Union Iron Works size No. 2 Steam Pile Driver Hammer, weight 4000 lbs., with jaws for steel sheet piling, \$600.
Five Ransome 6-cubic-foot Steel Concrete Carts, \$5 each.
Two Emerson No. 2 Standard Pumps, each with foot valve and strainer; never used; \$400 each.
Two Olney & Warrin Locomotives, 50 H. P. Boilers, mounted on wheels, weight 11,900 lbs. each, \$500 each.
Two Lidgerwood Reversible Swinging Engines, catalogue No. 154½, 5"x6" cylinders, \$180 each.
Two No. 234 Mundy Hoisting Engines, without boilers, 6½"x12" cylinders, \$450 each.
One No. 5 Deane Boiler-Feed Pump, cylinders 7"x4½"x10", \$50.
Miscellaneous lot of Tools. List on request.
Camp Outfit, including Tents, Cooking Outfit, etc. List on request.
Office Fittings, including Desk, Safe, etc. List on request.
Prices F. O. B. cars Ferris, Texas.



PATENTS Secured or Fee Returned

Send model or sketch for free report as to patentability. Our four books sent free to any address:

How To Obtain Patent, with one hundred mechanical movements.

What To Invent, with valuable *List of Inventions Wanted*.

One Million Dollars Offered for Inventions. List

of Patent Buyers and Fortunes in Patents.

Patents secured by us advertised

FREE

VICTOR J. EVANS & CO.

724-726 Ninth Street, WASHINGTON, D. C.

We have recently secured the following patents. Address all communications to Sales Dept., Victor J. Evans & Co., Washington, D. C.

F. I. Belles, invalid rest.
J. C. Miller, stirrup.
Harry C. Wilson, razor-stropping machine.
Wm. R. Sanders, steam engine.
Julius Frits, egg case.
Mrs. Jane Geary, window-curtain rod.
Arthur Gregory, lid for cooking utensil.
Wm. F. Hackney, door track and hanger.
Harold Ball, wagon-tongue eveners.
Thos. B. Butters, anchor.
Charles Hammer, bottle or jar closure.
F. W. Eggers, attachment for grindstone.
Burton B. Chase, screwdriver.
Norman E. Andrie, pneumatic hub.
Daniel H. Taylor, mine-car coupler.
Raymond D. Shephardson, oil can.
W. B. Speice, automobile starter.
Geo. W. Mason, stuffing box.
Harry A. Yates, electric fuse.
W. M. O'Brien, separating apparatus.
A. A. LeGendre, whip locking socket.

Thomas Suchla, device for loading freight cars.
Earl C. Feaster, stock guard for railroad crossing.
Frank E. Weaver, seed-corn stringer.
H. T. Wilks, gate latch.
W. J. Purvis and C. A. Wilson, flying machine.
W. B. Woods, nut lock.
Rev. J. F. Leeper, metallic device for bottles.
Geo. W. Levan, heel cushion.
J. M. Galloway, safety railroad device.
Irving L. Fake, signal.
Geo. P. Boardman, pen and pencil holder.
E. H. Crawford, window screen.
W. F. Geyer, smoke elevator and concentrator.
John Ryan, twister.
Frank E. Cottler, rail joint.
Beia R. Halderman, ash holder.
Edward N. Burdick, print washer.
Claude Calver, closure retaining device.

Walter H. Penick, lamp.
G. E. Allen, key-retaining device.
Stuart E. Bell, wire nail.
John Gronek, hinge.
N. Jantzen, can-lifting jacks.
Robert E. Elliott, sugar can.
P. H. Hickie & Spear, plow attachment.
Rev. H. Rottler, waste-plug lifter.
Rev. Gust Hall, mail-bag catcher and deliverer.
Stanford Rife, shock absorber.
P. T. Strader, train attachment.
William Smith, stuffing box.
A. J. Slaughter, bottle stopper.
Alex. Kertes, automobile attachment.
Frank A. White and Joseph Kirkley, umbrella.
Walter R. Sturgeon, shock absorber.
W. E. Moreland, pipe.
Henry Noffsinger, dustproof oiler.
George Zell and Wm. S. Shenk, iron shears.

Rev. Robert Liddell, oil burner.
Mrs. Rose E. Woodworth, baking pan.
J. B. Wilks and J. E. Burghoff, comb. embossing and cutting device.
Erwin F. Reichmuth, combined bottle opener and button hook.
Irwin C. Whitman, printing-press punch.
L. D. Wade, nut lock.
Chas. W. Sego, glass fastener.
Harrison B. Smith, brush.
Mrs. E. Bailey, stove leg.
A. Lenard Marshall, keyhole finder.
Francis J. McKenna, curtain hanger.
S. W. Statton, oil burner.
Wm. C. Cole, monkey wrench.
Geo. H. Janes, vase.
Frank Blanchett, feed hopper.
G. Gagnowits, combined knife and fork.
William Finlay, rope machine.
Heflin, Heflin & Pennisten, filter.
Frank H. Baldwin, clamp.
Lloyd W. Barnhart, device for loading hay.

Bargains in Machinery and Supplies.

500 H. P. CORLISS ENGINE

500 horse-power right-hand Engine, simple Corliss heavy-duty frame, size 24x48, complete, including flywheel 18 ft. diameter, grooved for 14 turns 1 1/2-in. rope, American, drive-steam receiver separator, 7-in. steam pipe, including one long radius bend and flanges; can be seen in operation at our mill in Mt. Carmel, Ill. Address

BERNET CRAFT & KAUFFMAN MFG. CO.
Office, 1036 Pierce Bldg, St. Louis, Mo.

DYNAMOS and MOTORS SPECIAL BARGAINS

Practically new, 200 K. W., 125 volt, 6-pole, Burke Dynamo, 480 R.P.M., \$825.00.

150 H.P., 250 volt, type "M.P.", 6-pole, C. & C., Shunt Wound Motor, 350 R.P.M., \$675.00.

100 K. W., 6-pole, 250 volt Crocker-Wheeler Dynamo, 650 R.P.M., \$640.00.

100 H.P., 2-phase, 60-cycle, Westinghouse, type "C," Induction Motor, 1120 R.P.M., \$450.00.

300 Dynamos and Motors in all sizes, thoroughly overhauled and guaranteed.

We buy, sell and rent.

E. LEVENE & CO.

124 N. Third St. Philadelphia

Rebuilt Engines and Boilers

Engines—Corliss.—18x12 Lane & Bodley, 18x38 Ohio Heavy Duty, 16x42 Atlas, 12x30 Lane & Bodley.

Engines—Automatic.—14x24 Buckeye, 11x16x12 Buffalo Compound, 13x15 Taylor, 13x16 Atlas, 13x12 Harrisburg-Ideal, 12x12 Phoenix, 12x14 Green, 12x12 Armstrong & Sims, 11x16 Atlas, 10x12 Valley, 8x14 Noyes.

Engines—Throttling.—18x24 Atlas, 11x18 Stinker-Davis, 14x14 Lewis Vertical, 12x16 Reed, 12x14 Brownell, 10x16 Bass, 10x12 Atlas, 8x14 Lane & Bodley, 8x10 Erie, 6x8 Industrial.

Boilers—Stationary.—72x18, 66x16 High-Pressure, 72x18 Standard, 72x16, 66x18, 60x16, 60x14, 54x14, 48x14, 44x14, 42x12, 36x16, etc.

Boilers—Fire Box.—100, 80, 60, 50, 40, 35, 30, 25, 20, 16, 12, 10 and 8 H. P., etc.

Boilers—Vertical.—50, 40, 35, 30, 25, 20, 16, 12, 10, 8, 5 and 3 H. P., etc.

Heaters.—All sizes. Open and Closed.

Pumps.—All sizes. Single and Duplex.

Electrical.—30 K. W. Generator, direct connected to 8x10 Skinner Engine; 20 K. W. Generator, direct connected to 8x10 Economic Engine; 18 K. W. Belted Generator.

Miscellaneous.—Sawmills, Lath Mills, Edgers, Cut-off Saws, Re-Saws, Blowers, Exhaust Fans, Tanks, etc. Write for list. Also full assortment of new machinery.

Sole manufacturers of the celebrated "Leader" Injectors and Jet Pumps. Send for circular.

THE RANDLE MACHINERY CO.
1734 Powers Street. CINCINNATI, OHIO

AT YOUR PRICE BEFORE REMOVAL

1 16x16x15 Class "A" Ingersoll Compressor.
2 20x20x24 Class "A" Ingersoll Compressors.
5 250 to 400 H. P. Corliss Engines.
1 No. 2 1/2 Climax Crusher.
2 No. 15 Champion Crushers.
2 20-ton Standard Gauge Locomotives.

PITTSBURGH MACHINERY & EQUIPMENT CO.
405 Fulton Building, Pittsburgh, Pa.

100 H. P. BOILER

100 H. P. Scotch Marine Boiler, 18 months old, 125 lbs., Hartford insurance, butt-strapped, triple riveted, \$500.00 f. o. b. Sunbury, Ohio.

DUZETS & SON, Hudson Terminal, New York

WAGON PLANT EQUIPMENT

We recently purchased the wagon plant of the Hickman-Ebbert Company and are prepared to sell the following at a sacrifice: 52 Channel Iron Ball-Bearing Lumber Yard Cars. 12 Transfer Cars. 1 Improved Fellows Sawing Machine with Saws. 1 Patent Automatic Double Vertical Chisel Hub Mortising Machine. 1 Spoke Tenoning Machine. 1 Hot Blast Heating Apparatus, complete for dry-kiln; cost \$2250. Each article of best manufacture; only slightly used; first-class condition. Address

THE UNIVERSAL STENOTYPE CO.,
Owensboro, Kentucky.

4-Valve Engines FOR SALE

1—18x27 Russell, right hand.

1—17x24 Russell, left hand.

1—13x18 Erie City, left hand.

1—13x18 Atlas, left hand.

All in fine condition, ready for immediate delivery and service.

Pfannmueller Engineering Co.

3701-3-5-7 S. Ashland Ave. CHICAGO

100 K. W. 250 Volt Westinghouse Belted Generator

Six-pole, compound wound, direct current, type M, speed 550 R. P. M., with base pulley and field rheostat. Condition like new. Guaranteed. Price \$750.00 cash. Send for list of other Bargains.

MILLER-OWEN ELECTRIC CO.,
317-219 First Ave., Pittsburgh, Pa.

15 H. P. 3-Phase 60-Cycle 220 Volt Westinghouse Motor

Slip-ring, type F, speed 900-450. Has rails, pulley starter and controller for varying speed. Slightly used. Guaranteed. Price \$200.00 cash. Send for list of other Bargains.

MILLER-OWEN ELECTRIC CO.,
317-219 First Ave., Pittsburgh, Pa.

FOR SALE

One 30"x24"x13 1/2"x20" Norwalk Compressor. One 13"x12" Ball Engine. One 15"x14" Ball Engine. One 24"x4" Corliss Engine. One 14"x18" Center Crank Slide-Valve Engine. One 7"x10" D. C. 2. D. Hoisting Engine and Boiler. Three 5"x3" Double-Drum Hoisting Engines and Boilers. One 6"x10" Double-Drum Hoisting Engine and Boiler. One Deane 12 and 20"x10 1/2"x12" Duplex Piston Pattern Pump.

CHAS. T. LEHMAN, - Birmingham, Ala.

FOR SALE CHEAP

Cast Iron Pulleys all sizes.
Dry Kiln Trucks, sprocket chain.
One Shingle Mill, engines and boilers.
One Large Log Haul-up. Shafting.

Tampa Machinery Exchange, Tampa, Fla.

FOR SALE

1 complete 600-light Plant, \$350.
1 complete 1200-light Plant, \$500.
Large stock of Engines, Pumps, Air Compressors, all in A-1 condition.
35 H. P. Boilers at \$175.
Railroad Rails, 16-lb. to 70-lb.
Pipe from 1" to 12".

TEXAS SUPPLY CO., Beaumont, Texas.

Woodworking Machinery

FOR SALE

For Sale—One first-class Stationary Boiler, 42 in. diam., 22 ft. long, 10 6-in. riveted flues, 1 dome, 2 mud-heads; will carry 150 lbs. steam; breeching, grate bars and fire front included.

For Sale—One 5-in. Hand Planer. One Fellows Cutting-off, Boring and Doweling Machine. Both J. A. Fay & Egan make. Both new and never used except to test machines. For Sale—One set Insulator Pin and Bracket Machinery; 1 Bracket Lathe, 4 Pin Lathes, 1 Splitting Machine, 1 Boring Machine, 1 Threading Machine; all necessary bits and knives; also countershafts.

O. C. GALLOWAY,
Successor to The J. B. Galloway Co.,
Clarendon, Ark.

MACHINERY

We have purchased the contents of several large machine and automobile plants, the equipment of which consists of all modern and standard make of tools, engine lathes from 10" to 42", boring mills from 12" to 60", planers from 16" to 48", turret lathes, 24" and 40" Gisholt, 2"x24" and 3"x36" Jones and Lamson, 24" Davis chucking lathes, 36" Fellows gear shapers, Cincinnati and Garvin plain and universal millers, Becker Brainard vertical millers, No. 2 Beamen and Smith combination miller, Brown and Sharpe universal grinders. For further information and prices apply to the

GIRARD MACHINE & TOOL CO.,
493 N. Third St., Philadelphia.

We Buy and Dismantle FACTORIES

MILLS MACHINE SHOPS

and all kinds of

INDUSTRIAL PLANTS

We are always in
the market to buy

Scrap Iron and Steel

OF EVERY KIND

FRANK SAMUEL

Harrison Building

15th and Market Sts. Philadelphia, Pa.

Central Station Equipment

At special low prices, complete list of station equipment for sale, including boilers, engines, pumps, heaters, 220 volt D. C., 1100 volt A. C. generators, direct connected and belt connected; switch boards, A. C. and D. C.; large list of D. C. 220 volt motors.

ADDRESS

The Georgetown Water, Gas, Electric & Power Co.
GEORGETOWN, KY.

ELECTRIC LIGHT OR POWER PLANT

Fairbanks-Morse 50 horse-power Producer Gas, like new, cheap.

S. & S., BOX 517, OCALA, FLA.

DYNAMOS AND MOTORS

I buy, sell, rent and exchange.
The best and the cheapest.
Let me know what you have for sale and what you want to buy.

THOMAS YEARSLEY

211 N. 3rd Street, Philadelphia, Pa.

Rope Transmission, Tension Carriage and Rope

FOR SALE

One never used 100 to 125 H. P. Rope Transmission, complete with tension carriage and rope. Make us an offer.

MISSISSIPPI BOX CO. CAIRO, ILL.

Engines and Generators

Large Stock of Engines and Generators
Locomotives and Cars

The Dorner Railway Equipment Co.
Irving Park Blvd., cor. Southport, Chicago.

ELECTRIC MACHINERY, Etc.

- 1 50 H. P. Crocker-Wheeler Motor, D. C., 220 V., 600 R. P. M.
- 2 35 H. P. Commercial Motors, D. C., 250 V., 540 R. P. M.
- 1 25 H. P. Commercial Motor, 220 V., 700 R. P. M.
- 1 5 H. P. Commercial Motor, 250 V., 500 R. P. M.
- 1 15 H. P. Lundell Motor, D. C., 230 V., 920 R. P. M.
- 2 Lambert 40 H. P. Electric Hoists, D. D. and swinger, D. C., 220 volts.
- 4 60 H. P. Lambert Electric Hoists, D. C. and swinger, D. C., 220 volts.
- 2 1000 H. P. Berryman Heaters.
- 1 500 H. P. Berryman Heater.
- 3 350 H. P. B. & W. Water-Tube Boilers, 140 lbs.

Large stock of Fire Hose, 1-inch and 3-inch dia., complete, with couplings and nozzles.

HENRY A. HITNER'S SONS CO.
PHILADELPHIA, PA.

FOR SALE CHEAP

150 H. P. D. C. Ball-Wood Engine to two 50 K. W. Generators, 125 amperes.
Eight Steel Smoke Stacks, all sizes.
Four Steel Trusses, 50-foot span.
One Lighter with Derrick Equipment.

CENTRAL TRANSFER CO.,
415 N. Front St., Baltimore, Md.

FOR SALE

Lillie Quadruple Effect

150,000 gallon capacity, with condenser, suitable for sugar or soda solutions. A bargain. For further particulars, apply to

E. A. SAMMONS CO., Ltd
NEW ORLEANS, LA.

Concrete Mixers--2d Hand Bargains

1 Chicago Cube No. 33 with Steam Engine and Boiler. 1 Foote No. 2 Continuous Mixer, 3 hopper, with Gasoline Engine. 1 Systematic Continuous Mixer, 3-hopper, with Gasoline Engine. Also several sizes Eclipse Batch Mixers, slightly used or with second-hand engines. Write for complete list. STANDARD SCALE & SUPPLY CO., 1345-47 Wabash Ave., Chicago.

BARGAINS IN STOCK

Immediate Delivery, Rebuilt and Guaranteed

ENGINES

- 26"x46"x18" Cross Compound Wetherill, 200 lbs. steam.
- 25"x48" Wetherill, 200 lbs. steam.
- (2) 18"x36" Bate Corliss.
- 15 1/2"x16" New York Safety Automatic.
- 14"x28" Ittuckey.
- 13"x26" Buckeye.
- 12"x24" Buckeye.
- 11"x30" Putnam.
- 9"x14" Buckeye.
- And many others.

BOILERS

All types and sizes.
STACKS
8' Self-Smoking, 100' high.
6'x55' Smokestack.

AIR COMPRESSORS

- 18"x18 1/2"x24" Ingersoll-Sergeant.
- 14"x9"x8"x12" Ingersoll Two-Stage, "Imperial" type.
- 14"x12" Laidlaw-Dunn, belt driven.
- 12"x12"x12" Laidlaw-Dunn, steam driven.
- 10"x9" American, belt driven.
- And many others.

HEATERS

- 1000 H. P. Cochrane, late type.
- 1000 H. P. Berryman Glenner.
- 800 H. P. Wheeler, New.
- 600 H. P. Berryman.
- 500 H. P. Berryman.
- 400 H. P. Wetherill.

PUMPS

- One (1) 18"x26"x18" Snow Duplex.
- Two (2) 16"x10 1/4"x10" Worthington Duplex.
- One (1) 500-gal. Underwriter's Fire Pump.
- One (1) 750-gal. Underwriter's Fire Pump.
- 500 H. P. Conover Jet Condenser, complete.
- Vacuum and Condensing Pumps, all sizes.

MACHINE TOOLS

Large stock of Machine Tools. Note my adv. in last week's issue. Send for Special List. Correspondence solicited.

HERMAN L. WINTERER

908-910 Beach St. Philadelphia, Pa.

DON'TS FOR BUYERS

Don't fail to buy from advertisers in the MANUFACTURERS RECORD as they are the most representative firms seeking Southern business.

Don't forget to mention the MANUFACTURERS RECORD when writing to them.

CORLISS CROSS COMPOUND ENGINES FOR SALE

Two Corliss Cross Compound Engines, 20"x42". One 3-drum 25 H. P. Electric Hoist, 500 volts, D. C. All practically new. Will sell cheap to quick buyer.

BOSTON IRON & METAL COMPANY

OFFICE: 305 TO 315 N. HOLLIDAY ST., BALTIMORE, MD.
RAILROAD YARD: CANTON, BALTIMORE, MD.

1876

MACHINERY HEADQUARTERS

Frank Toomey, Inc.

131 N. Third St.

PHILADELPHIA, PA.

NEW or SECOND-HAND

**Power Equipment
Machine Tools
Woodworking Machines**

OUR STOCK

We have a well-assorted stock in the above lines and believe a personal inspection would enable you to find just the machine wanted.

To those who cannot do this, we can mail carefully prepared descriptive lists.

As each machine is thoroughly rebuilt and the condition guaranteed, you can run no risk in making your purchases from us.

ELECTRICAL OUTFITS

The Power Department is offering some exceptional bargains in Direct Connected Sets Generators and Motors. They are worth investigating.

**Air Compressors
Hoisting Engines
Pumps**

1912

FOR SALE PIPE

Second-Hand

All sizes, $\frac{1}{8}$ inch to 24 inches
Furnished with new threads and couplings, suitable for all practical purposes; large stock constantly on hand, together with a general assortment of used contractors' machinery.

MARINE METAL & SUPPLY CO.
167 South St. NEW YORK

IN revising our manufacturing equipment we find the following first-class

Used Machine Tools

which we offer at attractive prices

ENGINE LATHES

- 16 in. x 6 ft. Lodge & Shipley, Q. C. G.
- 16 in. x 6 ft. Hendey, Q. C. G.
- 16 in. x 6 ft. Pratt & Whitney, Q. C. G.
- 16 in. x 8 ft. Reed.
- 18 in. x 8 ft. Lodge & Shipley, Q. C. G.
- 18 in. x 10 ft. Lodge & Shipley, Q. C. G.
- 20 in. x 8 ft. Lodge & Shipley, Q. C. G.
- 20 in. x 10 ft. Lodge & Shipley, Q. C. G.
- 24 in. x 8 ft. Lodge & Shipley, Q. C. G.
- 36 in. x 12 ft. Lodge & Shipley, Q. C. G.

SPECIAL LATHES

- 24 in. x 7 ft. Lodge & Shipley Chucking Lathe.
- No. 3 Lodge & Shipley Rapid Reduction Lathe.

METAL SAWS

- No. 3 Nutter-Barnes Cold Saw.
- Franklin Cold Saw, $\frac{3}{4}$ in. capacity.
- Globe Power Hack Saw, 8 in. capacity.

MISCELLANEOUS MACHINES

- Mumford 12 in. x 40 in. Molding Machine.
- Write for complete description with prices of machines in which you are interested.

THE LODGE & SHIPLEY MACHINE TOOL CO.
CINCINNATI, OHIO

TAKE NOTICE!

We buy and pay highest market prices for all grades

SCRAP METAL

such as scrap brass, copper, zinc, babbit metals, lead, skimmings, drosses, ashes. Advise what you have to dispose of and we will be glad to name our best prices.

H. KANDER & CO. BOWLING GREEN, OHIO

CORLISS ENGINES

- 1 18x36 Bates.
- 1 16x42 Allis.
- 1 18x42 Brown.
- 1 18x42 Lane & Bodley.
- 1 20x48 Wetherill.
- 1 22x48 Hamilton.
- 1 24x42 Atlas.
- 1 22x48 Allis.
- 1 28x54 Hamilton.
- Automatic Engines of all sizes.
- 1 40-ton Corliss Engine Type De La Vergne Ice Machine.
- 1 60-ton Corliss Engine Type De La Vergne Ice Machine.
- 1 lot Brewery Tanks.
- Woodworking Machinery of all kinds.
- Belting, Shafting, Pulleys and Hangers.

CLEVELAND BELTING & MACHY. CO.,
Cleveland, Ohio.

HIGH GRADE MACHINERY

- 1 Class "J" Duplex Ingersoll-Rand Belt-Driven Air Compressor; cylinders 14x14 and 22x14; capacity, 1350 cu. ft. of free air per minute.
- 1 Class "J" Duplex Ingersoll-Rand Belt-Driven Air Compressor; cylinders 16x16 and 25x16; capacity, 1600 cu. ft. of free air per minute.
- 15 6000-gallon Oil Storage Tanks.
- 10 8000-gallon Oil Storage Tanks.
- Write for our Machinery Bulletin No. 225, quoting low prices on everything we handle in first-class second-hand Engines, Boilers, Pumps and other Machinery, fully guaranteed.

CHICAGO HOUSE WRECKING CO.
W. 35th and Iron Sts., Chicago, Ill.

PIPE, SECOND-HAND

All sizes, any quantity, furnished with new threads and couplings, guaranteed for service.

PIPE CUT TO SKETCH

CONTRACTORS' EQUIPMENT OF EVERY DESCRIPTION

PIPE & CONTRACTORS SUPPLY CO., 3 Dover St., NEW YORK

FOR SALE

PIPE AND CASING AT BARGAIN PRICES

- | | |
|--|---|
| 4,000 feet 1" Line Pipe, 1.67 lbs. per foot. | 2,000 feet 4" Line Pipe, 10.00 lbs. per foot. |
| 1,000 feet 1 1/2" Line Pipe, 3.00 lbs. per foot. | 12,000 feet 6 1/4" Casing, 13.00 lbs. per foot. |
| 12,000 feet 2" Line Pipe, 3.61 lbs. per foot. | 1,150 feet 8 1/4" Casing, 24.00 lbs. per foot. |
| 5,900 feet 3" Line Pipe, 7.50 lbs. per foot. | 3,700 feet 8" Line Pipe, 24.00 lbs. per foot. |

We desire to move our stock of pipe immediately and will quote very low prices for quick sales. Write or wire us.

G. MATHES IRON & METAL COMPANY

General Offices: 3100-30 N. Broadway.

ST. LOUIS, MO.

ENGINE AND GENERATOR FOR SALE

- 1-225 H. P. Nordberg Cross Compound Condensing Corliss Engine, 12x22x36; 14 foot rope pulley; 10 grooves 1 1/2 in. rope.
- 1-125 K.W. 2-phase, 60-cycle, 2200 volt Westinghouse Generator, with exciter and switchboard panel. The unit is immediately available, it being taken out to make room for a 1000 K.W. steam turbine. For a limited time it may be seen in operation. For further particulars, address

BOARD OF PUBLIC WORKS, HOLLAND, MICH.

WOODWORKING MACHINERY

FOR SALE

FIRST-CLASS CONDITION.
Morgan No. 6 Lock-Corner Cutter. Morgan No. 1 Settling-Up Machine. Vysong & Miles No. 168 Vertical Single Spindle Mortiser. Berlin No. 197 30" Hand Jointer. Berlin Planer No. 152. Berlin No. 202 Double Spindle Shaper. Berlin 20" Hand Jointer with safety circular head. Berlin Self Feed Band Rip Saw. Berlin No. 236 6" swing Cut-Off Saw. H. B. Smith 12" Hand Jointer with safety circular head. H. B. Smith No. 185-C Double Spindle Shaper. Mattison No. 4 Universal Turning and Block Machine. Pringle & Brodie No. 3 Combination Lathe. Wonder Sander. Also other woodworking machines.

PLYMOUTH NOVELTY MFG. CO., Plymouth, Ind.
We are changing our line of work and do not need these machines. Write for prices and complete list.

COTTON OIL MACHINERY

FOR SALE

A quantity of Cotton Oil Machinery—Presses, Pumps, Cooker, etc. For prices write to

SOUTHERN FIBRE CO.
PORTSMOUTH, VA

BOILER AND PUMP FOR SALE

- 1 20 H. P. Erie Economic Self-Contained Firebox Locomotive Type Boiler, slightly used, good condition. 1 Burnham Steam Pump, outside plunger packed, 4" suction, 3" discharge, 8 1/2x6x10, practically new, and 1 Worthington Steam Pump, 3" suction, in good condition. Write for price.

S. W. OSGOOD, Jefferson City, Tennessee.

SECOND-HAND MACHINERY

LATHES.

- 12x6 Le Blond, P. C. F.
- 11x5 Champion, C. R. P. C. F.
- 14x6 Reed, C. R. P. C. F.
- 18x7 Hendey Norton, C. R. P. C. F.
- 18x8 Reed, C. R. P. C. F.
- 16x12 Bullard, C. R. P. C. F.
- 14x5 Reed, R. & F.
- 18x8 Porter, compound rest.
- 18x6 Lodge & Davis, C. R. P. C. F.
- 18x8 Putnam, R. & F. rest.
- 20x10 Prentiss, C. R. P. C. F.
- 20x10 Draper, C. R. P. C. F.
- 24x14 Reed, high speed.
- 26x22 New Haven, plain turning.
- 27x12 Pratt & Whitney, C. R. P. C. F.
- 32x12 Niles, C. R. P. C. F.
- 32x12 Johnson, triple geared, C. R.
- 32x17 Bement-Miles, C. R., triple geared.
- 36x14 Lodge & Shipley, C. R. P. C. F.
- 36x16 Reed, C. R. P. C. F.
- 38x14 Pond, P. L. R., P. C. F.
- 38x20 Fay & Scott, C. R. P. C. F.
- 40x18 Newark, triple geared, C. R. P. C. F.
- 46x38 Fitchburg, compound rest, P. C. F.
- 84x20 Putnam, C. R., T. G.
- 102x35 Bement, compound rest, P. C. F.
- An assortment of speed lathes.

SCREW MACHINES.

- 20x8 Bogart, turret on carriage.
- 2 1/2" Pearson, F. B. G., P. F.
- 2" Pratt & Whitney, hub former.
- 2x24 Jones & Lamson, flat turret.
- No. 2 3/4" Warner & Swasey, wire feed.
- No. 2 1/2" Garvin, wire feed, friction head.
- No. 1 Garvin, wire feed.
- 3/4" National Acme, automatic.
- 3/4" Pratt & Whitney, screw shaver.
- No. 2 Warner & Swasey, hollow hexagon.
- 18x6 Springfield, univ. fox.
- No. 6 Brown & Sharpe, friction head.
- 1" Smurr & Kamen, wire feed.
- 1/2", 3/4", 1" and 2 1/4" Pratt & Whitney, automatics.
- 1 1/4" 4-spindle Gridley, auto.
- 1 1/2"x18" Pratt & Whitney.

MILLERS.

- No. 1 Cincinnati Universal.
- No. 7 Becker, Lincoln type.
- Rivett bench on stand.
- No. 2 Pratt & Whitney, Lincoln pattern.
- No. 12 Brown & Sharpe, manufacturers'.
- Benjamin & Smith, planer type for automobile work.

DRILLS.

- 26" Lodge & Davis, B. G. & P. F.
- 32" Box, half universal, radial.

PRENTISS TOOL & SUPPLY CO.

SINGER BUILDING, 149 BROADWAY, NEW YORK

Warehouse, 439 Communipaw Ave., Jersey City, N. J.

- No. 25 Foote-Burt, high speed.
- F 12" Baker Bros.
- 10-Spindle Gardam, multiple.
- 7-Spindle Slate, bedstead drill.
- 4-Spindle Foote-Burt, adjustable rail.
- 2-Spindle Barnes, gang.
- 36" Blackford, radial, B. G. & T. A.
- 2-Spindle Foote-Burt, sensitive.
- 4-Spindle Foote-Burt, sensitive.
- 4-Spindle Henry & Wright, sensitive.
- 3 Blackford, radial, B. G. & T. A.
- 32" Lodge & Davis, sliding head.
- 37" Gould & Eberhardt, sliding head.
- 24" American, sensitive radial.

PLANERS.

- 20x20x4 Pease, 1 head.
- 36x36x8 Gleason, 1 head.
- 36x36x7 Sellers, 1 head.
- 30x30x7 Wheeler, 1 head.
- 30x30x10 Gleason, 1 head.
- 48x42x8 Farrell, 1 head.
- 30x30x8 Davis & Egan, 2 heads.

SHAPERS.

- 14" Lodge & Davis, plain.
- 18" Putnam, friction.
- 22" Lodge & Davis, shifting belt.
- 17" Juengst, horizontal crank.
- 15" Hendey, friction.

MISCELLANEOUS.

- 54" Niles, car wheel lathe.
- Boring Mill, 51", Bement.
- Boring Mill, 61", Bausch.
- Boring Mill, 10", Pond.
- Boring Mill, 25" bar, Bement.
- Boring Mill, 62", Bullard.
- Boring Mill, 4" bar, Betts, horizontal.
- Press, No. 4 Mossberg, inclinable.
- Press, No. 55 Ferracute, heavy geared.
- Pipe Machine, No. 4 Sanders.
- Pipe Machine, 4" Curtis & Curtis.
- Boring Mill, 2-sp., Beaman & Smith.
- Gear Cutter, No. 1 Whiton, spur and bevel.
- Gear Cutter, 72", Gould & Eberhardt.
- Grinder, Walker, electric surface.
- Hammer, 25 lbs., Dupont trip.
- Hammer, 50 lbs., Bradley compact.
- Hammer, 200 lbs., American, steam.
- Hammer, 1600 lbs., Pratt & W., drop.
- Slotted, 12" Betts.
- Grinder, Sellers, universal tool.
- Grinder, No. 23 Landis, plain.
- Grinder, No. 60 Heald, cylinder.
- Grinder, Gisholt tool.
- Grinder, No. 1 Besly, disc.
- 3 H. P. Motor, 230 volts, D. C.
- 7 1/2 H. P. Motor, 230 volts, D. C.

Railroad and Contractors' Equipment and Supplies.

Georgia Car & Locomotive Co.

ATLANTA, GA.

LOCOMOTIVES, FREIGHT CARS, PASSENGER COACHES

LARGEST STOCK EQUIPMENT IN U. S.

RAILS LOCOMOTIVES

RELAY RAILS

LOCOMOTIVES—Narrow and Standard Gauge. 150 Locomotives at our shops 6 to 80 tons. Freight and Passenger Cars.

Largest Stock Locomotives
in United States

Southern Iron & Equipment Co.
ATLANTA, GA.

FOR SALE RELAYING STEEL RAILS

About 1000 tons, 60 lbs. per yard, with plates,
Middle West Delivery.

About 150 tons, 48 lbs. per yard, with plates,
About 600 tons, 56 lbs. per yard, with plates,
About 3000 tons, 60 lbs. per yard, with plates,
About 200 tons, 70 lbs. per yard, with plates,
New York Delivery.

NEW FIRST QUALITY STEEL RAILS,
ALL WEIGHTS

THE STEEL RAIL SUPPLY COMPANY,
No. 2 Rector Street, New York City

RELAYING RAILS

1000 ton 40-lb. Relayers and Angles.
2000 ton 60-lb. Relayers and Angles.
3000 ton 90-lb. Relayers and Angles.
500 ton 80-lb. Relayers and Angles.
Low price. Quick shipment.

L. B. FOSTER COMPANY
629-630 Park Bldg., Pittsburgh, Pa.

RELAYING RAILS

500 tons 40s with angles
500 tons 80s, 45 feet long
500 tons 90s with continuous joints

Write for particulars of other weights
HYDE BROS. & CO., Pittsburgh, Pa.

Sweet's Steel Co.
WILLIAMSPORT, PA.

Manufacturers of

Light Steel Rails

12, 16, 20, 25, 30, 35 and 40-lb. Sections.
Also Splices, Bolts, Nuts and Spikes.
Our Rails are first quality. A. S. C. E.
Section, carefully inspected.

Prompt Shipments from Stock

Bedstead Angles and Special Shapes

Locomotives

Four wheel type

40 tons; 17' x 24"; 160 lbs. pressure

Overhauled.
Modern.

E. H. WILSON & COMPANY
ARCADE BUILDING
PHILADELPHIA

RELAYING RAILS

ALL WEIGHTS
SHIPMENT FROM STOCK

Write or Wire for Prices.

Harry Benjamin Equipment Co.
727-728 Central Nat. Bank Bldg., St. Louis, Mo.

RELAYING RAILS

300 tons 56 lb. Rails with Angles
300 tons 60 lb. Rails with Angles
200 tons 74 lb. Rails with Angles

Other weights. Send me your inquiries.
E. G. SHERWOOD, 50 Church St., New York

RELAYING RAILS

Various weights. Stock shipment.
First-class condition, subject to inspection.
Write or wire us for prices before
placing any order.

G. MATHES IRON & METAL CO.
3100-3130 N. Broadway ST. LOUIS, MO.

J. E. FRANKS

Room 729 Candler Bldg.,
ATLANTA, GA.

RAILS, CARS AND LOCOMOTIVES
FROGS, SWITCHES, Etc.

A. S. C. E. Sections
LIGHT STEEL RAILS
PROMPT DELIVERY.

8, 12, 16, 20, 25, 30, 35, 40 pounds per yard.
With Splices and Spikes.
UNITED STATES RAIL CO.
Manufacturers. Cumberland, Md.
Certificates of Inspection by Hildreth & Co.,
Inspecting Engineers of New York City, as-
suring absolutely first quality, furnished free
of cost.

FOR SALE

Several miles standard section relaying
rails, also light rails in stock. 18-ton Shay
geared locomotive and other equipment. Ad-
dress.

NATIONAL IRON & STEEL CO.,
Houston, Texas.

Locomotives for Sale

STANDARD GAUGE.

One 50-ton 18x24 Schenectady six-wheel
Switching Locomotive, with new fire box;
extra good condition.
One 18x24 and one 19x24 Mogul, with small
drivers; wagon-top boilers; excellent en-
gines; new fire boxes.

36" GAUGE.
Three 9x14 Baldwin Saddle-Tanks.
One 10x14 Porter Saddle-Tank.
Over fifty other Locomotives in stock at
Birmingham, both standard and narrow
gauge, in all weights from 10 to 75 tons.
Write us for prices and terms.

Birmingham Rail & Locomotive Co.
BIRMINGHAM, ALA.

Relaying Steel Rails

(30-lb., 40-lb., 56-lb., and 60-lb.)

Advantageously located for Southern deliv-
ery; also other weights heavy section RE-
LAYING RAILS, in different sections of
the country; and NEW STEEL RAILS,
all weights. We handle only first-class Re-
laying Rails, and do not select them from
scrap. We buy Rails fit to relay, and pay
spot cash.

ROBINSON & ORR, Pittsburgh, Pa.
Low Prices on New FROGS and SWITCHES.

New Light Rail

12 TO 45 LB.

Cheaper than Relaying Rail

"ASK US"

RELAYING RAIL

56 TO 85-lb. Sections

Frogs, Switches, Nuts, Bolts, Spikes

Geo. M. Newhall Engineering Co.
PHILADELPHIA-NEW YORK

FOR SALE

LOCOMOTIVES, CARS, RAILS, SWITCH-
ES AND FROGS, STEAM SHOVELS,
HOISTING ENGINES, DERRICKS, PILE
DRIVERS, CONCRETE MIXERS, STONE
CRUSHERS.

Maryland Equipment & Supply Co.
BALTIMORE, MD.

Kilby Frog & Switch Co.

BIRMINGHAM, ALA.

Manufacturers of

Railroad Crossings, Frogs,
Switches,
Switch Stands, Rail Braces

And Special Work of all kinds
for Steam and Street Railroads

RAILROAD GRADING OUTFIT

FOR SALE

Including one New Era Grader, Wheel
Scrapers, Drag Scrapers, Carts, Plows, Wag-
ons, etc. Address AUGUSTA NORTHERN
RAILWAY, Saluda, S. C., where all can be
seen.

LOCOMOTIVES

Two standard gauge 35-ton, 4-driver
saddle-tanks, built 1910. High steam
pressure; perfect condition.

F. W. TRIMBLE, 45 Broadway, New York

Good Lot Relaying 40-lb. Steel Rail

FOR SALE

I have about 9 miles good condition 40-lb. Steel
Rail to sell. Delivery can be made in a few weeks'
time after sale is effected. Address

W. J. EDWARDS, SANFORD, N. C.

FOR SALE

One single cylinder gasoline roller,
nearly new; price low.

J. M. B. & SONS, care Manufacturers
Record, Baltimore, Md

RAILS

NEW AND RELAYING RAILS RAILROAD BRIDGES AND EQUIPMENT

HENRY LEVIS & CO.

26 South Fifteenth Street

PHILADELPHIA



FOR SALE

3-54-ton 10-wheelers, 1-40-ton 8-wheeler,
1-32-ton 4-wheel switcher.

Passed Government Inspection.

BALDWIN EQUIPMENT & SUPPLY CO.

904 Fisher Bldg., CHICAGO, ILL.

RAILS, LOCOMOTIVES, CARS

Before Buying or Selling anything, write



April 50-page Bulletin now ready.

RELAYING RAILS

400 ton of 40-pound, with angles.
500 ton of 56-pound, with angles.
800 ton of 60-pound, with angles.
300 ton of 80-pound, with angles.
1800 ton of 90-pound, with angles.
Frogs, Switches, Bolts and Spikes.
THE L. A. GREEN EQUIPMENT CO.,
Pittsburgh, Pa.

H.W. PICKETT CO., Inc.

1107-8 Harrison Building
PHILADELPHIA, PA.

REPRESENTING

Vulcan Iron Works, Locomotives
W. J. Oliver Mfg. Co., Dump Cars
George M. Newhall Eng. Co.,
Industrial Locomotive Cranes
National Hoisting Engine Co.,
Hoisting and Swinging Engines
Austin Cube Mixer Co.
Chicago Cube Tilting Mixers

New Light Rail Re-Laying Rail

AND A LIMITED AMOUNT OF STRICTLY
FIRST CLASS SECOND-HAND
EQUIPMENT

FOR SALE—LOGGING EQUIPMENT

Climax 22-ton Locomotive, 36", steam brake;
cheap. Climax 30-ton Locomotive, 40",
tons, first class. Shay 23-ton Locomotive, 4
3/4", steam brake; cheap. Baldwin Logging
Engine, 4' 8 1/2", 4 drivers, 2-wheel rear truck;
overhauled. Climax 18-ton Locomotive, 36",
built 1906; 9 Log Cars; very cheap. Shay
70-ton Locomotive. Address

THE MALES CO.,
82 Perlin Bldg., Cincinnati, O.

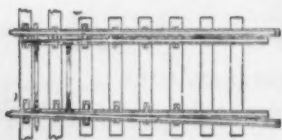
ELECTRIC HOISTS

FOR SALE CHEAP

2 Lidgerwood Single Friction Drum
Electric Hoists, speed 215 ft. per minute,
250 volts. Special standard No. 513,
style 52, G. E. motor, 16 H. P., and one
speeded to 250 ft. per minute.

MARINE METAL & SUPPLY CO.

167 South Street,
NEW YORK CITY.



SWITCHES, FROGS, CROSSINGS

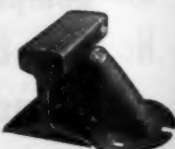
Portable and Industrial Track

THE CINCINNATI FROG & SWITCH COMPANY

Switch Stands

CINCINNATI, OHIO

Rail Braces (4)



OLIVER DUMP & SPREADER CARS

(DUMPED BY AIR OR HAND)

Only AIR DUMP CAR under absolute control of operator. Can be brought back to upright position, after passing center of gravity, before entire contents of car have been unloaded. This admits of equal distribution of material on both sides of track. Write THE WM. J. OLIVER MFG. CO., KNOXVILLE, TENN., AND 50 CHURCH ST., NEW YORK, N. Y.

CONTRACTORS' EQUIPMENT

FOR SALE OR RENT

12-ton 1 1/4-yard Vulcan Traction Steam Shovel.
1 No. 1 1-yard Thew Traction Steam Shovel.
18 S. G. 12-yard Western Center Dump Cars.
15 S. G. 8-yard One-way Allison Dump Cars.
1 1/2" Morris Centrifugal Belt-Driven Sand Pump.
14-wheel S. G. Industrial 10-ton Locomotive Crane, 60' boom.
14-wheel S. G. Industrial 10-ton Locomotive Crane.
14-wheel S. G. 5-ton Yale & Towne Locomotive Crane, rigid boom.
14-wheel S. G. 2-ton Brown Locomotive Crane, rigid boom.
10-ton 3-wheel New York Steam Road Roller.
12-ton Tandem Universal Puddle Roller.
1 1/2-ton Iroquois Asphalt Roller.
1 1/2" x 16" Baldwin 4-driver 36" gauge S. T. Locomotives.
1 1/2" x 16" Porter 4-driver 36" gauge S. T. Locomotives.
1 1/2" x 22" Baldwin 4-driver S. G. S. T. Locomotives.
1 Lidge-wood Hoisting Engines, 14" x 18", D. C. 3 tandem drums.
1 Hoisting Engines, Mundy, Lidge-wood and Lambert, from 6" to 12" cylinders, mounted and skeleton, single, double and triple drums.
1 Lambert 40 H. P. Electric Hoists, D. D. and swinger, D. C., 220 volts.
1 40 H. P. Lambert Electric Hoists, D. C. and swinger, D. C., 220 volts.
1 Lambert Cableways, complete, 250' and 300'.
1 Steel Guy Derricks, 70' mast, 60' boom.
1 Guy and Stiff-Leg Derricks (wood), all sizes.
1 1/2-yard Hayward Orange Peel Buckets.
1 1/2-yard Hayward Clamshell Bucket.
1 1/2-yard Hayward Clamshell Bucket.
1 1/2-yard and 1 1/2-yard Tipple Buckets.
1 Steam-driven Air Compressors, straight-line and duplex, from 100 to 2000 cubic feet of air.
1 Pumps, Boilers, Engines, Drills, Rock Crushers, etc.

HENRY A. HITNER'S SONS CO.
PHILADELPHIA, PA.

PLANERS

52"x52"x23' 9" "Betts," one head.
42"x36"x12' "American," open side, two heads.
40"x40"x10' "Powell," one head.
37"x36"x10' "Belmer Eames," 3 heads.
36"x36"x11' "Bement Miles," 2 heads.
36"x32"x10' "Detrick & Harvey," open side, one head.
20"x20"x65" "Sellers," one head.

We also have in stock ready for delivery a large selection of lathes, gear cutters, screw machines, pipe machines, punches and shears, and grinders. Send for our latest Price List.

L. F. SEYFERT'S SONS, Inc.
437-441 N. Third St. PHILADELPHIA

EXCAVATORS FOR SALE

One 80-foot boom Drag Line Excavator, equipped with Mundy Engine. One 85-foot boom Drag Line Excavator, equipped with an American Hoist & Derrick Co. Engine, together with all boilers, engines, attachments, tools and appliances used in connection therewith. Said property is located on the work of the East Side Levee and Sanitary District in East St. Louis, Illinois.

Address FRANK NELSON, Jr.
Brown Marx Building Birmingham, Ala.

8-ton Tandem Roller for Sale

Good condition. Price right. Immediate delivery. Write

A. S. FORBES
Care Manufacturers Record.

RAILWAY EQUIPMENT

One 10x10 cylinder Geared Climax Locomotive, 25 tons; one 17x24 cylinder Baldwin, passenger type, 35 tons; one 9x16 cylinder Vulcan, Forney type, 16 tons; one 14x22 cylinder Baldwin, 35 tons; one 12x16 cylinder Baldwin, 42-inch gauge, 25 tons; one 7x12 cylinder Porter, 36-inch gauge, 8 tons, saddle-tank; one 9x16 cylinder Baldwin, 42-inch gauge, 14 tons; one 9x16 cylinder Vulcan, 36-inch gauge, 6-wheel, 17 tons, saddle-tank. Several skidding and loading machines.

J. H. MACLEARY, SUFFOLK, VA.

Contractors' Equipment

FOR SALE

Two Standard Gauge Locomotives.
17-12-yard Oliver Dump Cars.
2 Ingersoll-Rand Class A Air Compressors, 18x20 1/4 x 24.
2 Flory Hoisting Engines (7 x 10), complete with reversing boom swinging gear and drums.

G. R. McAbee Power & Oil Company
PITTSBURGH, PA.

\$2750 STEAM SHOVEL \$2750

1 No. 0 Thew Revolving Shovel, on traction wheels, first-class condition, any inspection, located in southwest.

RAILS, CARS AND LOCOMOTIVES

R. K. PAPIN & CO.
Pierce Bldg. ST. LOUIS, MO

6 Star Reversible Dump Wagons

FOR SALE
For traction. Hold 3 1/2 yards; roller bearing; good as new. Attractive price for immediate removal.

WILSON-LACY-HURSH CO.
25 N. 7th Street, PHILADELPHIA, PA.

LOCOMOTIVE FOR SALE

1-20-ton Porter Locomotive, first-class condition. Can be seen at shop. DIBERT, BANCROFT & ROSS CO., Ltd., New Orleans, La.

Complete Stone Crushing Plant for Sale

Located at Perryville, Tenn., including—
1 80 H. P. Boiler.
1 55 H. P. Boiler.
1 60 H. P. Engine.
1 40 H. P. Engine.
1 No. 5 Champion Rock Crusher.
2 No. 4 Champion Rock Crushers.
Steam Drills, 1 1/2 yd. Western Dump Cars, Camp Cars, 2 Elevators complete, Belting, Water Pipe, Pumps, Blacksmith Tools, etc. Will sell at bargain.

MEMPHIS STONE & GRAVEL CO.,
1630 Exchange Bldg., Memphis, Tenn.

Road Machinery For Sale

Hauling outfit consisting of 1 25 H. P. Port Huron combination Traction Engine in fine condition with 8 5-1/2 c. yd. Port Huron Self-spreading Car Wagons, used eight months. 2 10-ton Port Huron Steam Rollers. 2 Austin and Aurora Jaw Crushers, 9x16 opening, 20 foot elevator.

JOHN FUNKE
2486 McMicken Ave. CINCINNATI, OHIO

STEAM SHOVELS

1 Model 60 Marion.
2 70-ton Vulcans.
25 six-yard DUMP CARS.

F. W. TRIMBLE, 45 Broadway, New York

FOR SALE CHEAP

GOOD TERMS

1 Bucyrus 65 Shovel.
1 Vulcan 90 Shovel.
1 Colean Traction Engine.
1 1/2, 3 1/2, and 4-yard Side Dump Cars.

Upright Boilers from 8 Horse-Power up.

Locomotive Type Boilers from 20 Horse-Power up.

The Wm. J. Oliver Mfg. Co., Knoxville, Tenn.
NEW YORK, 50 CHURCH ST.



EFFICIENCY—PROFIT!

Many a road-building job has shown a loss instead of profit simply because of inefficient equipment—machinery that consumed too much time in doing the work or that did not do its work thoroughly.

This cannot happen where CASE Road-Building Machinery is used. Tried and tested, it has proved its efficiency and profit-earning qualities under the most adverse conditions. Contractors and Road Builders who use CASE Machinery are the successful men in their field.

Write for CASE Road Machinery Catalog No. 81

Our complete line of Road-Building Machinery—Road Rollers, Tractors, Graders, Scrapers, Drags, Rooters, Plows, Rock Crushers, Stone Screens and Bins, Dump Wagons, Sprinklers—is thoroughly described and illustrated in this catalog.

J. I. Case Threshing Machine Co.

(Incorporated)

Racine, Wisconsin, U. S. A.

Modern Passenger Coaches

Released by Pennsylvania R. R.

Length of body 46' 7"

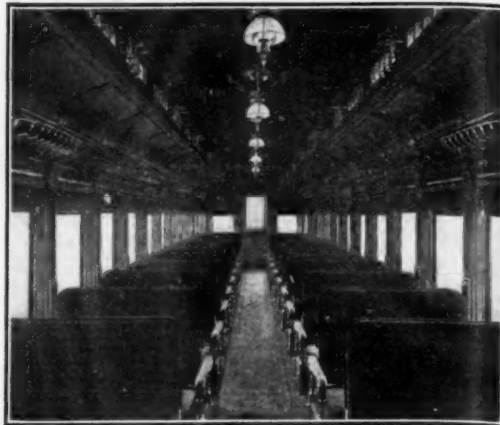
Seating capacity 58 persons

Finished in solid quartered white oak

High-back seats. Large windows shaded by curtains. Choice of three lighting systems—Pintsch gas, carburetor gasoline or oil.

A good number to select from. Many recently out of shops.

Every road that has inspected has bought. If you are in the market we can be of service to you. Shall we send full specifications?



HENRY LEVIS & CO., 26 So. 15th St., PHILADELPHIA

The AMERICAN FROG & SWITCH CO., Hamilton, O.

FROGS, SWITCHES, SWITCH STANDS, RAIL BRACES.

J. B. ELLIS, President

R. D. NEELY, Secretary

The Union Iron Works Co.
SELMA, ALA., U. S. A.

LOGGING CARS

Manufacturers of
Engines, Boilers, Live Rolls
Locomotive Rebuilding a Specialty



THE MAY & TURNER CO., ATLANTA, GA.

MANUFACTURERS OF THE
BURROUGHS RAILWAY NUT LOCKS

Dealers Relaying Steel Rails and Railway Supplies

Bonzano Rail Joints.

Make Better Track. Reduce Expense.
Millions In Use.

The Q & C Co.

New York.

Chicago



THE MARTIN PATENT NUT LOCK

This is the only Nut Lock that is guaranteed to be absolute under all conditions. It can be used in any place where there is a bolt. It is reasonable in price. Made for steel or for wood. Sizes 3-16" and upwards. Write for sample and prices.

The Universal Nut & Bolt Lock Co., 1029-1035 Saratoga St.
NEWPORT, KY.

ESTABLISHED 1866

INCORPORATED 1905

Plates, Steel Castings, Bridge and Structural Work

BOLTS

SPIKES

BARS

SHAPES

Nickel-
Chromium
RAILS

PIG IRON

Open Hearth
and
Bessemer

Sales Agents:

PENNA. STEEL CO.
MARYLAND STEEL CO.
CENTRAL IRON & STEEL CO.
PULASKI IRON CO.
MOUNT SAVAGE FIRE BRICK
VIRGINIA IRON, COAL & COKE CO.

AGENTS
PENNA. STEEL CO.

AGENTS
MARYLAND STEEL CO.

GIRDER and TEE RAILS, FROGS, SWITCHES, Etc.

R. C. HOFFMAN & CO., Inc.

BALTIMORE, MD.

WRITE US FOR PRICES

THE UNIVERSAL CONCRETE TIE AND FASTENER

The only composite tie on earth that has proven a success under five and six years actual traffic conditions of the heavy kind.

The only rail fastener that will hold rails in position and true to gauge indefinitely.

Fewer parts to look after than in any other tie. Practically nothing to work loose or get out of order.

No tie plates necessary; nothing to corrode except four screw spikes that are almost instantly removed and replaced without disturbing the tie, and that, too, after many years of use.

Patented everywhere. Investigate.

Write for information and testimonials and for our special prospectus.

UNIVERSAL CONCRETE TIE COMPANY

Whitney-Central Building

NEW ORLEANS

**DAVENPORT LOCOMOTIVE WORKS**

DAVENPORT, IOWA

BRANCHES:

Chicago, 12 and 14 So. Canal Street

New York, 30 Church Street

St. Louis, 654 Pierce Building

Minneapolis, 107 Third Avenue N.

Seattle, 411 - 13 - 17 Western Avenue

F. H. Hopkins & Co., Montreal, Que., Canadian Representative.

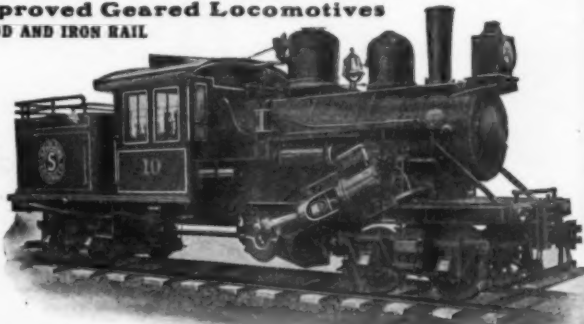
Climax Improved Geared Locomotives FOR WOOD AND IRON RAIL

Successfully operated on steep grades and sharp curves.

Any weight or gauge.

Power in center of each axle.

Get Catalogue G.



CLIMAX MANUFACTURING CO.

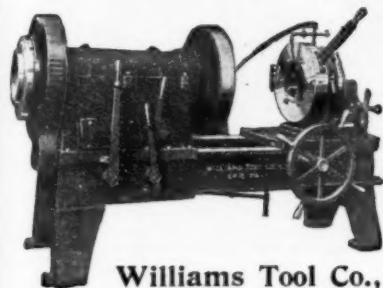
O. T. Patterson Co., New Orleans.

311 West Main St., CORRY, PA.

G. M. Dilley & Son, Palestine, Tex.

If You Could See

With what Ease, Speed, Accuracy and Economy a

**Williams Pipe Machine**

Threads and cuts off pipe, any size from 1/4" to 18", you would immediately want one.

Don't wait, but let us send you printed matter and tell you where you can see machines working.

Williams Tool Co.,

Erie, Pa., U. S. A.

THE WEIR FROG CO.

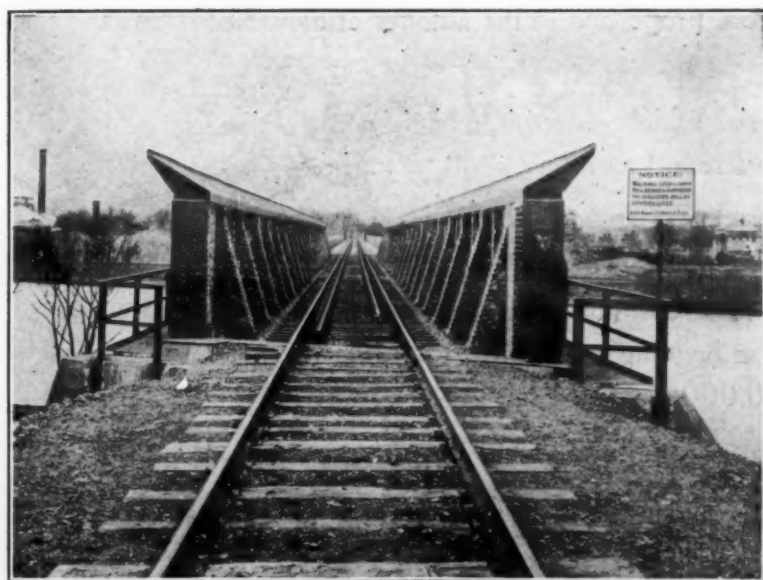
Manufacturers of

Frogs, Switches, Crossings Rail Braces etc

CINCINNATI, O.

CARNEGIE STEEL COMPANY

General Offices, Pittsburgh, Pa.



STEEL CROSS TIES, Section M-21, on Hot Metal Bridge

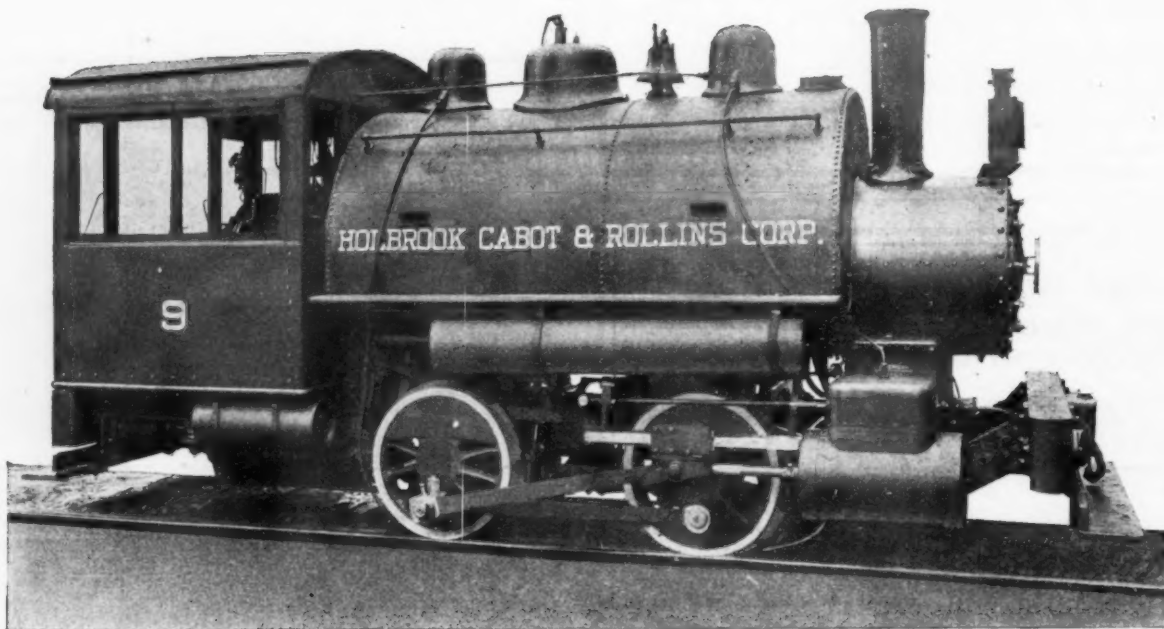
Steel Cross Ties

When Steel Ties are used in track construction, maintenance troubles are invariably reduced.

It will pay to investigate.

INDUSTRIAL LOCOMOTIVES

FOR BURNING COAL, WOOD OR OIL



The construction of our standard light locomotives embodies all the essential features which experience has taught us go to make up a satisfactory locomotive.

They are the product of wide experience, are built for hard work, simple in design, have a minimum number of moving parts and are accessible for making repairs. The wear and repair of a locomotive are in direct proportion to the number of movable parts.

Every piece of material which enters into their construction must first undergo a severe test and must conform to rigid specifications. This insures the use of proper material for every part.

In buying a locomotive from us you get the benefit of the knowledge of engineers who make a study of locomotive requirements, the experience gained in building over 50,000 locomotives, and the guarantee of a \$50,000,000.00 company.

AMERICAN LOCOMOTIVE COMPANY

30 CHURCH STREET, NEW YORK

McCormick Building, Chicago

Dominion Express Building, Montreal, Canada

N. B. Livermore & Company, Los Angeles; San Francisco; Seattle; Portland, Oregon

HEISLER GEARED LOCOMOTIVES

Send for Detailed Descriptive Catalog M B

Heisler Locomotive Works

ERIE, PENNSYLVANIA, U. S. A.

Especially adapted for heavy hauling on steep grades, sharp curves and uneven tracks. For logging, switching and pulling on main lines, mills, furnaces and industrial purposes.

VULCAN IRON WORKS

WILKES-BARRE, PA.

Builders of

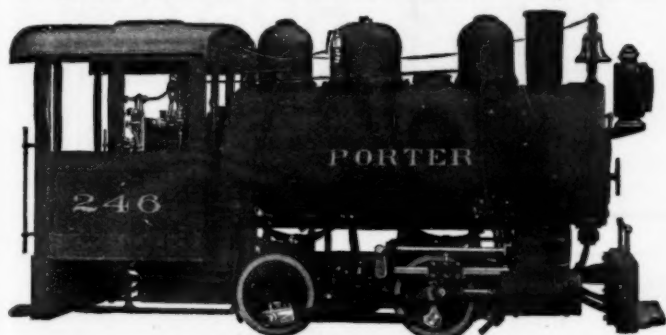
LOCOMOTIVES

For all classes of service



Norfolk Representative
Southern Supply Co.

N Y Office
50 Church St.

"PORTER LOCOMOTIVES"

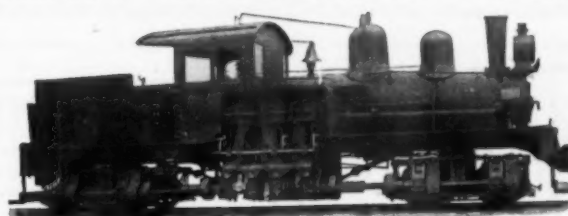
STEAM AND COMPRESSED AIR

For all Gauges of Track and Every Variety of Service, including Mine, Furnace, Lumber, Plantation, Industrial and Contractors' use. Locomotives 36" and 56 1/2" Gauge on Hand for Immediate Delivery.

H. K. PORTER COMPANY,

412 Wood St.

PITTSBURGH, PA.

LIMA LOCOMOTIVES

SHAY GEARED LOCOMOTIVE

We make Shay geared and rod locomotives. Our designs for direct locomotives are varied and up-to-date and drawn up by engineers of long and wide experience. Fully guaranteed. Always satisfactory. Let us send catalogue "O."

BRANCH OFFICES:

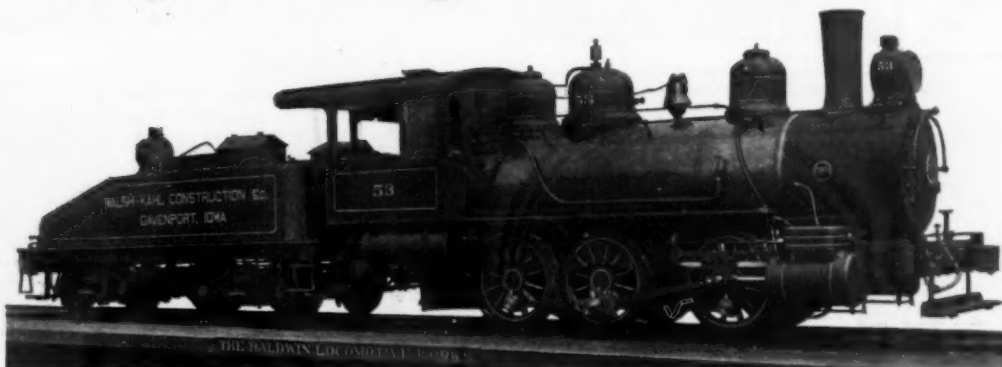
New York:
50 Church Street

Chicago:
1122-1123 McCormick Bldg.

New Orleans:
Woodward-Wight Co., Ltd.

THE LIMA LOCOMOTIVE & MACHINE CO.

110 Third Street,
LIMA, OHIO

Use Locomotives Suited To Your Operating Conditions

Six-Coupled Locomotive for Walsh-Kahl Construction Co.

Cylinders, 17"x24"; Driving Wheels, 50" diameter; Steam Pressure, 180 lbs.; Wheel-base, engine, 10' 6"; Wheel-base, engine and tender, 41' 7 1/2"; Weight, total engine, 92,650 lbs.; Weight, total engine and tender, 160,000 lbs.; Tank Capacity, 3000 gals.

A railroad needs different types of locomotives for different kinds of work, and so does a contractor. The illustration shows a standard gauge, six-coupled locomotive which exerts a tractive force of 21,200 pounds, and can safely run over rails weighing fifty to sixty pounds per yard. This engine can operate on curves of 230 feet radius and grades up to ten per cent., and is equipped with combined automatic and straight air brakes, automatic couplers, and air sanders. The cab is unusually roomy, an important feature in switching and contracting service. The locomotive is simple and durable in construction, and is built to gauges and templates so that duplicate parts can be readily furnished.

THE BALDWIN LOCOMOTIVE WORKS

PHILADELPHIA, PA., U. S. A.

CABLE ADDRESS, "BALDWIN PHILADELPHIA"

Branch Offices:

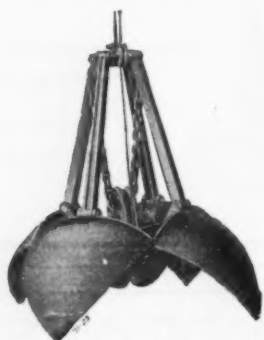
NEW YORK, N. Y., 50 Church St.
CHICAGO, ILL., Railway Exchange

RICHMOND, VA., Travelers Building

ST. LOUIS, MO., Wright Building
PORTLAND, ORE., Spalding Building

MEAD-MORRISON MANUFACTURING COMPANY

GRAB BUCKETS



STURDY, Durable, Efficient Grabs for every service are included in the Mead-Morrison Line.

Clam Shell and Orange Peel Types for Contractors' Work, Coal Handling, Mining and Excavating.

Works and Main Office
CAMBRIDGE, MASS.

New York, 149 Broadway; Chicago, Monadnock Bldg.; Baltimore, 821 Equitable Bldg.; Montreal, 286 St. James St.; Portland, Lumbermen's Bldg.; Pittsburg, 108 W. Parkway, N. S.; San Francisco, Metropolis Bank Bldg.; New Orleans, 110 North Peters St.; Seattle, Bailey Building; Los Angeles, 1206 Union Trust Bldg.

The Men on the Job Cost You Money

Help Them Along

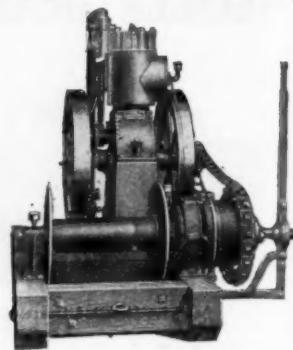
Give them the material they need. Give it to them quickly, properly, and to do this you should by all means install the

ECLIPSE

Gasoline Engine and Hoist

Lifting capacity 1000 lbs. with a single line, 75 to 125 ft. per minute. Engines are furnished Air or Water Cooled, as desired.

Myrick Machine Co., Olean, N. Y.



WEIMER CHAIN AND IRON CO.

Manufacturers
of

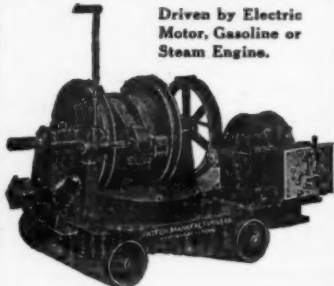
For
Cranes,
Dredges,
Steam
Shovels,
Conveying,
Ships, Railroads,
Quarries, Etc.

LEBANON, PA.
U. S. A.



PATTEN HOISTS

Driven by Electric
Motor, Gasoline or
Steam Engine.



Postal Brings Catalogue.
Patten Manufacturing Co., Chattanooga, Tenn.

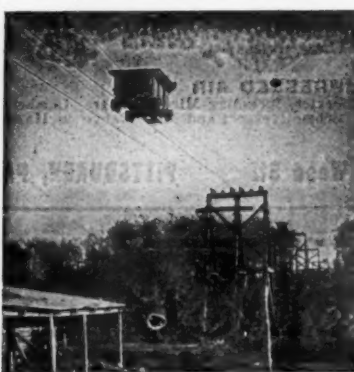
SPRAGUE CANNING MACHINERY COMPANY.

222 N. WARASH AV. CHICAGO, ILL.

WILLIAMSON CONTRACTORS' HOISTS

WITH THE PERFECT
DRUM MECHANISM
STEAM AND
ELECTRIC

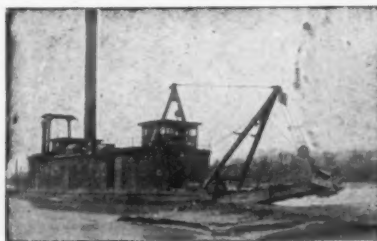
AMERICAN ENGINEERING COMPANY
MACHINISTS AND FOUNDERS
PHILADELPHIA PA.



The International
Cable Railway Company
605 Keyser Building,
BALTIMORE, MD.



VULCAN IRON WORKS CHICAGO PILE DRIVERS

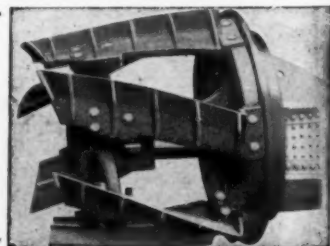


Hydraulic Dredging Machinery

PUMPS, WINDING MACHINERY, CUTTER MACHINERY,
LAND PIPES, PONTOON PIPES

The Norbom Engineering Company

DENCKLA BUILDING, PHILADELPHIA, PENNA.



LIDGERWOOD HOISTING ENGINES

Are of the Highest Quality and offer features to be found in no others

Steam and Electric Hoists

MORE THAN 34,000 ENGINES and ELECTRIC HOISTS IN USE

CABLEWAYS

For Mining, Quarrying, Logging, Dam
Construction, Etc.

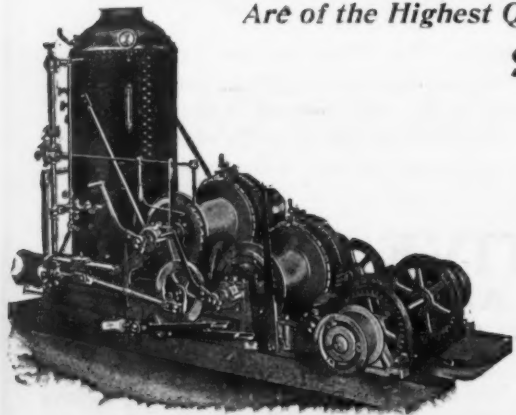
Send for Latest Catalogues

LIDGERWOOD MFG. CO.

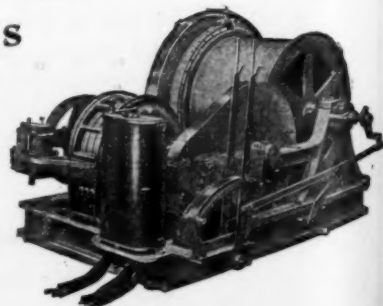
96 Liberty St., New York

BRANCH HOUSES:

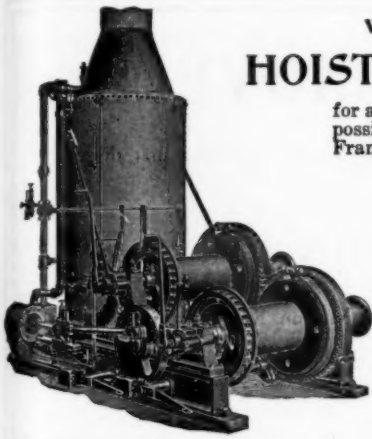
New Orleans Agency: Woodward, Wight & Co., L't'd.
Chicago Boston Pittsburgh Seattle Cleveland Philadelphia San Francisco, Cal.



Standard Contractor's Hoist, with Swinging Gear.



Single friction drum Induction Motor Mine Hoist equipped with Solenoid Brake. Furnished in sizes from 15 H. P. to 150 H. P. with a hoisting capacity of 1500 lbs. at a speed of 250 ft. per minute to 6500 lbs. at 675 ft. per minute.



WE MANUFACTURE HOISTING ENGINES

for all purposes and sell them at the lowest possible price. All engines built on Steel Frames and with Steel Drum Barrels. Also

Derrick Cars, Derrick Irons, Hand Powers, Blocks and Sheaves

We make a speciality of

Double and Single Platform Elevators for handling brick and mortar. These elevators are adapted for any height building. Write for Catalogue.

THE JOHN F. BYERS MACHINE CO.
RAVENNA, OHIO

NATIONAL ELECTRIC HOISTS FOR CARGO HANDLING

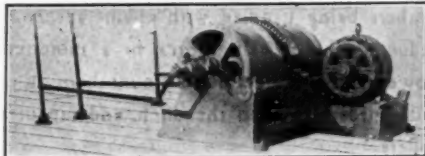
Catalog on request

Steam, Electric, Gasoline,
Hoisting Engines, Derrick
Swinging Engines.

NATIONAL HOISTING
ENGINE CO.

Harrison, N. J.

Atlanta Baltimore Pittsburgh Philadelphia Chicago



INCREASE YOUR PROFITS

BY BUYING ONE OF OUR RELIABLE ERIE CONTRACTORS' HOISTS to do all your hoisting, hauling, etc. Anybody can operate them. You can drive them with a gasoline engine or motor. They are simple, compact and easily moved from place to place. Made in three sizes—500 lbs., 1000 lbs. and 2000 lbs. capacity. You will be surprised at their efficiency and speed. Your men can accomplish more work if you use our hoists. Write NOW for new Catalogue H33.

Friction Clutches, Pulleys, Cut-Off Couplings

ERIE CLUTCH & PULLEY CO.
Established 1873. ERIE, PA., U. S. A.



STROUDSBURG HOISTING ENGINES

STEAM AND ELECTRIC

For all kinds of Hoisting and Haulage Work

Strodsburg Engine Works, PA.

BRANCH OFFICES:

Philadelphia, 1710 Market St.
Altoona, Pa., 1114 Tenth Ave.
Pittsburgh, Pa., 1151 Liberty Ave.
Chicago, Ill., Monadnock Block.
Portland, Ore., 62 First St.
New Orleans, La., 231 Canal St.
Norfolk, Va., Seaboard Bank Bldg.
Richmond, Va., 1138 Mutual Bldg.
Cincinnati, O., 3d and Vine Sts.

Up-to-date Derrick Engine.



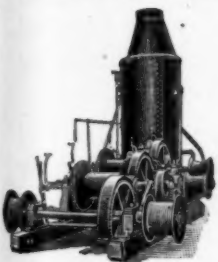
FLORY HOISTING ENGINES

STEAM AND ELECTRIC

For Contractors, Bridge Building,
Dredging, Cableways and General
Hoisting Duty

WRITE FOR 1910 CATALOG

S. Flory Mfg. Co.
BANGOR, PA.



IF you have a contract and want material, let us know and our engineering department will help you out. Thirty years' experience, which we have had, should mean something to you. There are SATISFIED CONTRACTORS all over the country using our

Steam and Electric Hoists and Derricks
SEND FOR CATALOG

Contractors' Plant Mfg. Co.

129 Erie St. BUFFALO, N. Y.

SALES AGENCIES

JOHN T. HORTON, 90 West St., New York, N. Y.
HENRY T. PEIRCE, Bulletin Bldg., Phila., Pa.
PERRIN, SEAMANS & Co., Boston, Mass.
WIMO SUPPLY CO., Spokane, Wash.
L. M. RUMSEY MFG. CO., St. Louis, Mo.



THE VERY FIRST THING

that Contractors, Engineers, Quarrymen, etc., speak of when they see

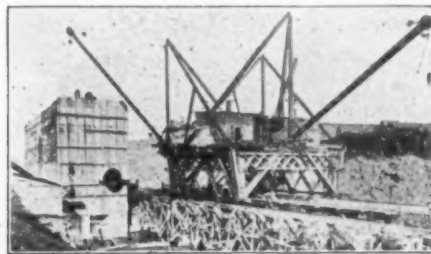
"AMERICAN" DERRICK IRONS

Is Their Excellent Appearance

After much experience, these people tell us that no better or longer wearing castings could be made.

There are no putty-filled holes painted over to cover up defects.

They will do more than is expected of them *all the time*.



Black Rock Harbor Improvement, near Buffalo, N. Y.
MacArthur Bros. Co., Chicago, Ill., Contractors.

Put it up to us to show you what we can do for you.

AMERICAN HOIST & DERRICK CO.

ST. PAUL, U. S. A.

Chicago
New York
Pittsburg

New Orleans
San Francisco
Los Angeles

Seattle
Portland
Spokane

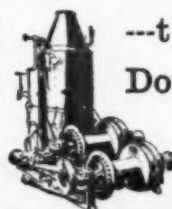
St. Louis
Denver
Winnipeg

Vancouver
Edmonton
Calgary

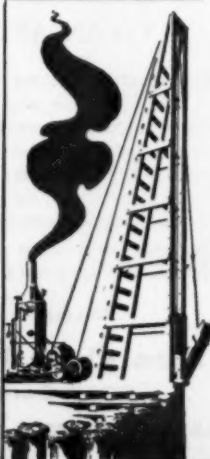
"CLYDE = GRADE" Than which there is none better

HOISTING ENGINES AND DERRICKS OF GREATER EFFICIENCY

THE MAN ON THE JOB TELLS YOU



---that this 7x10 Double Drum,
Double Cylinder Clyde Stands More
Grief and Does More Work
than 8x10's of Other Makes!



M. H. McGOVERN COMPANY
GENERAL CONTRACTORS AND CONSTRUCTION ENGINEERS
CHAMBER OF COMMERCE
CHICAGO, Nov. 1, 1912.

Clyde Iron Works,
516 Fisher Building,
Chicago, Illinois.

Testimony:
The 7 x 10 double drum engine of your make which we have purchased from you about a year and a half ago and has given us entire satisfaction.

We have used it on our big pile driver in driving piles on both sides of the River for the LaSalle Street tunnel and have found that it was a better steamer, did more work and stood more grief than the 8 x 10 engines of other makes which we have used on similar work under the same conditions.

We have had to buy no repairs at all for it thus far in spite of the hard work it has had to do. It is strong and well made in every way, and we can recommend to anyone in need of such an engine that they secure one like this from you people.

Respectfully,
M. H. McGovern Co.,
J. P. Joyce
Supt. of Pile Driving Work.

ASK FOR CATALOG NO. 21

MARION REVOLVING STEAM SHOVELS

The many excavating propositions to which these cost-reducing, profit-increasing shovels are being adapted indicates that there is practically no limit to their range of service. Just now they are greatly in demand

FOR SEWER TRENCH EXCAVATION



Model 28 built for Johnston, Porter & Peck in sewer trench excavation, Charlotte, N. C.

It's an easy matter to prepare Marion Revolving Shovels for this class of work. Simply substitute a special boom, dipper handle and dipper for the standard equipment. This is quickly done, and when so fitted they will dig sewers and trenches 30 in. to 14 ft. in width and 8 ft. to 20 ft. in depth, depending on the size of the special equipment

These machines are usually operated on railroad or traction wheels and are supported by timbers which span the trench, the timbers being handled with chains suspended from the dipper, thus reducing the working force to a minimum. In some instances, however, it is preferable to mount them on trucks of a special design, with girders to span the ditch, and supported by suitable wheels or rollers.

If yours is a sewer trenching proposition, it will pay you to investigate thoroughly Marion Ditching Machinery.

Write for further information.

The Marion Steam Shovel Co., Dept. H, Marion, Ohio

New York: 50 Church Street
Chicago: Monadnock Block

San Francisco: Monadnock Building
Montreal: F. H. Hopkins & Company

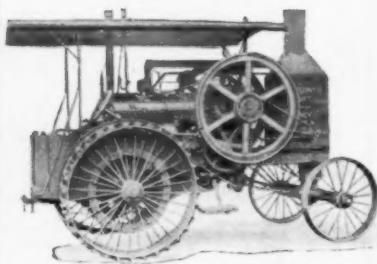
THE QUINCY GASOLINE TRACTOR

Usage has proven this tractor to be dependable for heavy and continuous service. The engine is connected directly from the crank shaft, by cut gearing, to a shaft beneath. It is an engine of the same construction as our stationary ones, with all principal working parts enclosed.

This Quincy Tractor is a very economical and convenient power for driving and hauling threshing machines, portable saw-mills, stone crushers, road machinery, air compressors, rock drills, pile drivers, etc.

These tractors are made in 10, 15 and 20 horse-power sizes.

We would like to show you one of these tractors in service operation.



QUINCY ENGINE CO.
QUINCY, PA.

Hershey, Pa., Sept. 29th, 1911.
Quincy Engine Co., Quincy, Pa.
Dear Sirs:—I have this day O. K'd the bill for your 20 Horse-Power Gasoline Traction Engine. I am glad to say for your engine that up to this time it has done all we expected, and more. Our larger stone crusher with two men filling, was done to our entire satisfaction by the engine. The work that we were afraid could not be accomplished was the running of our 22-in. Ohio Ensilage Cutter at high speed, but it ran this as successfully as any steam engine we had on the job.
One of our competitors was willing to bet \$100.00 that we could not run our 22 Ensilage Cutter with your engine. It not only ran the cutter for a few hours, but day after day, and we filled hundreds of tons of Ensilage with it. We were highly gratified to know that the consumption of gasoline was far less than you claimed. We could run same on from 12 to 15 gallons per day of 10 hours.
We have had the engine on trial since July 19th, and are convinced that it has the power to do what you claimed for it.
Hope same will prove satisfactory right along. Wishing you success, we remain,
Respectfully yours,
HERSHEY STORE CO., Per Clark, Mgr.



ROBINS BELT CONVEYOR

The Robins Belt Conveyor was the original and is today the standard of this type of conveying machinery.

It is successfully and economically conveying ore, rock, coal and similar materials under the most trying conditions of service.

CONVEYING, ELEVATING AND HOISTING MACHINERY.

ROBINS COAL AND COKE CRUSHERS.

We carry a complete stock of Chains and Sprockets. Write for monthly Bulletins

ROBINS CONVEYING BELT COMPANY

General Offices—13 Park Row, New York
Chicago: Old Colony Building.
Spokane: United Iron Works.
San Francisco: The Griffin Company.
Toronto: Gutta Percha & Rubber Mfg. Co.
Glasgow, N. S.: Brown Machine Co., Ltd.



Monighan Drag Line Excavators STEAM AND GASOLINE POWER

The excavator shown in this cut can be placed on the work at less cost than any other excavating outfit. Crew for operating machine consists of only two men. The excavator is mounted on traction wheels provided with self-propelling mechanism. Boom is 40 ft. long. One cubic yard bucket. We will give you, upon request, full information regarding capacity, cost of operation, etc.

We build excavators with booms from 40 to 125 ft. long and buckets from one to three cubic yard capacities.

Write for Excavator Catalog

Monighan Machine Company
2022 Carroll Ave., Chicago

SALE AGENT—P. B. ENGH, 341 Pacific Elec. Bldg., Los Angeles, Cal.

Illustration
No.
A1156Illustration
No.
D1090

One in One or Six in One—Which?

Most digging machines are sold as a machine for one purpose and for one class of work, but a

HAYWARD SKID EXCAVATOR

is adaptable to many purposes and to a variety of work. In fact, no digging machine can compare with it in flexibility and in the multitude of uses to which Contractors and Engineers constantly put it. Among others, six uses stand out prominently:

- | | |
|---|---|
| One.—Used as an ordinary Skid Machine. | Four.—Mounted on a scow and used as a Dredge. |
| Two.—Mounted on wheels and tracks of wide gauge and used as a Traveling Derrick. | Five.—The small sizes can be mounted on a flat R. R. Car and used as a Traveling Excavator. |
| Three.—Used as a Regular Derrick in a permanent position for hoisting all classes of materials. | Six.—The small sizes can also be mounted on a wagon with wide steel wheels and moved from place to place. |

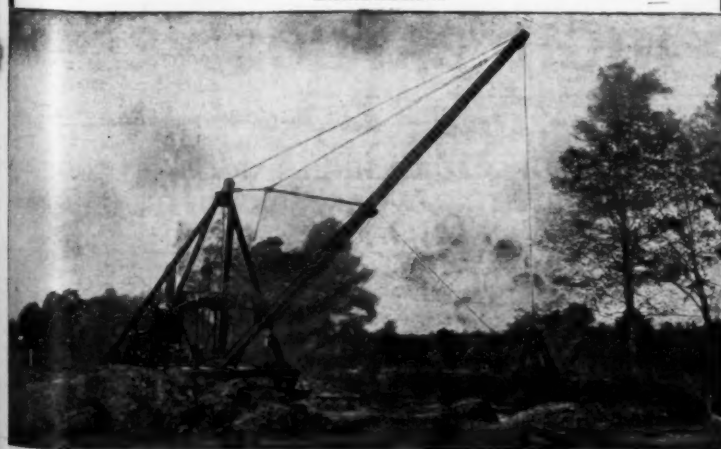
What digging machinery can show such a record of adaptability to the many conditions which confront contractors and engineers in the ordinary run of work?

Some conception of this is shown in the views herewith, namely, Illustration No. A 1156, in which a Hayward Skid Excavator is digging pebble phosphate, transferring it to hopper. In Illustration No. D 1090, a 1 cu. yd. Hayward Skid Excavator is shown, which dug 200 cu. yds. of hard-pan per ten-hour day for two months. Illustration No. 60 shows a Hayward Steel Traveling "A" Frame Machine, 16-ft. gauge, with stationary topping lift.

When you purchase, insist on a Hayward Digging Machine with its many advantages. Prices quoted on Buckets only, suitable for use with any type of operating machine, or prices quoted for Buckets and complete machine.

The Hayward Company
50 Church Street - New York

Illustration No. 60



To Manufacturers:

Let us figure with you on your springs.

We are thoroughly equipped to handle specifications for all kinds of springs, made to suit the most exacting requirements of elasticity, temper, strength and durability. We make all shapes and tempers, adapted to every use; and with large capacity can promptly deliver.

We can assist you in adapting standard forms, or figure new designs in flat or round steel. Our experience is at your disposal in any way that we may be of service. We solicit the favor of your inquiries.

Springs Catalogue furnished upon application.

We Make

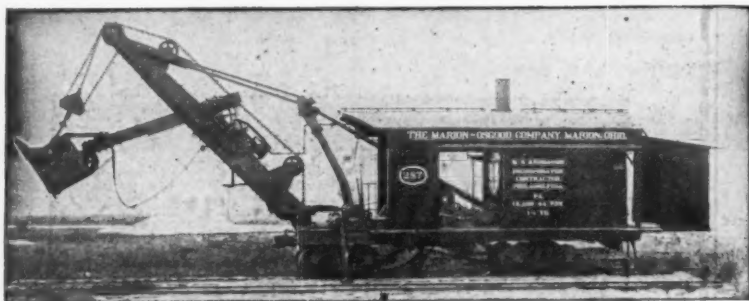
American Wire Rope	Barbed Wire
Aeroplane Wire and Strand	Woven Wire Fencing
Piano Wire	Fence Gates
Mattress Wire	Steel Fence Posts
Weaving Wire	Concrete Reinforcement
Broom Wire	Springs
Fence Wire	Sulphate of Iron
Flat Wire	Poultry Netting
Flat Cold Rolled Steel	Wire Rods
Wire Hoops	Juniata Horse Shoes and Calks
Electrical Wires and Cables	Shafting Cold Drawn Steel
Rail Bonds	Wire of Every Description
Bale Ties, Tacks, Nails, Staples, Spikes	

We issue separate catalog for each of these. Gladly furnished upon application.

American Steel & Wire Co.'s Sales Offices

CHICAGO 12 West Adams Street	DENVER First Nat'l Bank Bldg.
NEW YORK 30 Church Street	SALT LAKE CITY 726 South 2nd West Street
Worcester 97 State Street	SAN FRANCISCO 1640 & Fulton Sts.
BOSTON 120 Franklin Street	PORTLAND 301 & Irving Sts.
PITTSBURGH 1000 10th Avenue	SEATTLE 418 3rd Ave. S. & Union St.
CLEVELAND 1000 10th Avenue	LOS ANGELES 1000 10th Avenue
DETROIT 1000 10th Avenue	NEW YORK United States Steel Products Co., 30 Church St.
ST. LOUIS Third Nat'l Bank Bldg.	Export Representatives
MONTREAL Bank of Montreal Bldg.	
ST. PAUL-MINNEAPOLIS Pioneer Building, St. Paul	

THE MARION-OSGOOD COMPANY, Marion, Ohio, U. S. A.



Eastern Office: No. 51 State Street, Albany, N. Y.

**STEAM SHOVELS, DREDGES,
BALLAST UNLOADERS, All Sizes**

Manganese racks and pinions
Cast steel swinging circle
Substantial front end construction
Manganese dipper front
Specially strong boom
Gears with machine cut teeth
Large boiler and water tanks
Enclosed firing platform

Write fully covering your requirements. The advice and experience of our excavation experts is at your disposal.

There's Money in the Reclamation of Southern Swamp Lands



Others are making it. You can make it.
The economy, efficiency and durability of

Fairbanks Dredges

make them the "One Best" dredge for reclamation work.
It has been proven that the Fairbanks dredge will move more material, at less cost per yard, than any other dipper dredge on the market. We are dipper dredge specialists.

WRITE TODAY FOR NEW CATALOG

The Fairbanks Steam Shovel Co.

Dept. D.

MARION, OHIO, U. S. A.



"STUEBNER"

Buckets, Skips, Industrial Cars, Asphalt Melters, Hand Dump Carts, etc., are on the market 35 years.

They have a most excellent reputation.

Large number of the Coal Buckets are in use at Charleston, S. C., Wilmington, N. C., Jacksonville, Fla., and elsewhere.

Manufactured by

G. L. Stuebner, Iron Works

Vernon Ave., Long Island City
NEW YORK, N. Y.



PATENTED

CABLE EXCAVATOR COMPANY
Arcade Building, PHILADELPHIA

YOU should get our booklet.
It will pay you if you have any sand, gravel, clay, earth or other material which you wish to excavate economically.

With our cable excavators we can dig a radius of 1000 feet either above or below water. Our plants dig, wash, screen and load material. Three or four men will operate our largest plant.

We furnish complete installations.

Write for Booklet.

ARE YOU A USER OF HIGH EXPLOSIVES?

If so, we respectfully solicit your correspondence.

WE MANUFACTURE HIGH EXPLOSIVES for all classes of BLASTING WORK, MINING, QUARRYING, RAILWAY CONSTRUCTION, FARMING, Etc.

Our goods guaranteed to be full strength and percentage.

KEYSTONE NATIONAL POWDER CO.
EMPORIUM, PENNA.

It Pays to Use



EXPLOSIVES

The Results Obtained Prove Their High Efficiency

The selection of an explosive should be attended with much care because, if the proper one is used, it insures the accomplishment of the largest volume of excavation at the smallest cost.

The Du Pont Company has the facilities for conducting experiments to determine what is needful in the composition of explosives to make them most effective under certain conditions. In this manner, an extensive variety of explosives have been placed before engineers and contractors.

Du Pont Explosives are fully described in our High Explosives Catalog, which is sent free to engineers and contractors upon request. Amongst the many explosives made by the Du Pont Company is one especially suited to your work. Tell us your conditions so we may recommend the brand to use to attain maximum efficiency. Address Dept. 125.

DU PONT POWDER CO., **Wilmington, Delaware**



Excavating Bucket

For Land Reclamation

And All Excavating and Dredging

Our Special Buckets

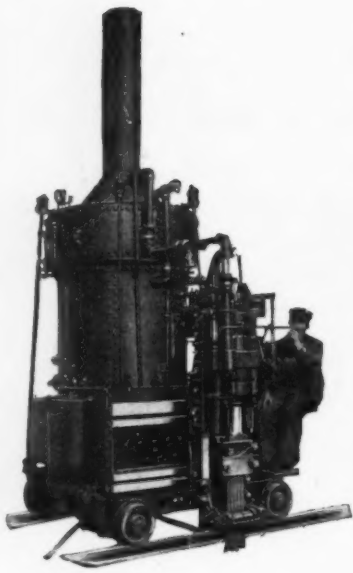
Solve the Problem

Clam Shell
Buckets
For All
Purposes

The G. H. Williams Co.
1502 Rockefeller Bldg. Cleveland, Ohio

Single
Rope
Buckets

The Judgment of the Majority Points to the Purchase of INGERSOLL-RAND CHANNELERS



The best evidence of the merit of any machine is the approval of the trade as expressed in orders and re-orders.

The sales of Ingersoll-Rand track channelers of all types, from 1895 to date, total 289 machines.

Your purchase of stone channelers is best safeguarded against failure when you are guided by the judgment of the majority.

INGERSOLL-RAND CO.

NEW YORK LONDON
COMPRESSORS ROCK DRILLS COAL CUTTERS
2-Chan.

Reliable Air Compressors

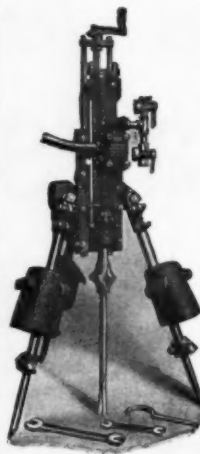
The Laidlaw-Dunn-Gordon Co. was the pioneer in center-crank construction which all builders of first-class compressors have since adopted.

All machines are built on the duplicate part system so that the parts are absolutely interchangeable.

WRITE FOR BULLETIN L517-29.

The Laidlaw-Dunn-Gordon Co.
New York Office: 115 Broadway Works: Cincinnati, O.
Branch Offices in all Principal Cities

L167.1



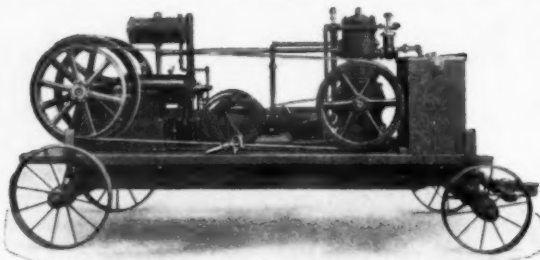
WICKES BROTHERS
MURPHY LITTLE CHAMPION
ROCK DRILLS
FOR
AIR OR STEAM

WICKES BROTHERS
443 CLAREMONT AVENUE
JERSEY CITY, N. J.

AGENCIES

Geo. S. Githens Co.	- - -	Boston, Mass.
J. M. Alexander	- - -	Atlanta, Ga.
Moore-Handly Co.	- - -	Birmingham, Ala.
Thos. L. Barret	- - -	Louisville, Ky.
Smith Drill and Mch'y Co.	- - -	Chattanooga, Tenn.
Colonial Supply Co.	- - -	Pittsburgh, Pa.

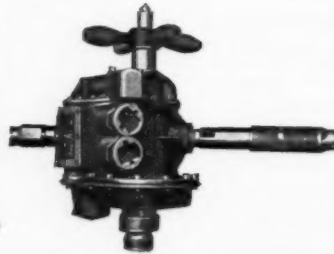
Gardner Portable Air Compressor



Just the
Thing for
Contractors

SEND FOR
CATALOG

THE GARDNER GOVERNOR CO., Station L, QUINCY, ILL.



LITTLE GIANT Ball Bearing Drills

solve the problem of economical drilling of wood or metals by Compressed Air.

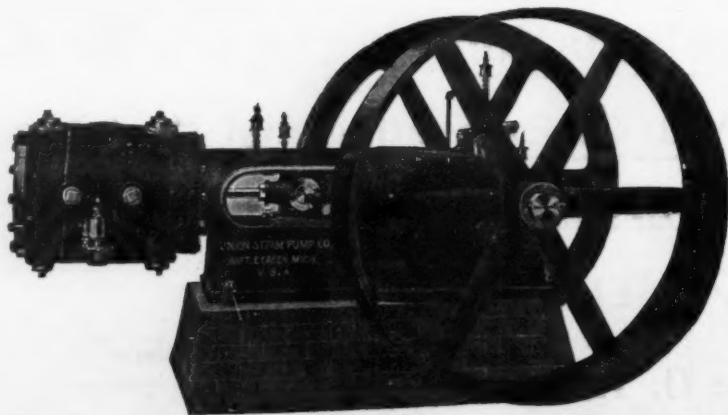
Folder No. 102 tells the story.

CHICAGO PNEUMATIC TOOL CO.
CHICAGO Branches Everywhere NEW YORK

CORE DRILLING



Liggett Building, ST. LOUIS, MO.



A STRICTLY HIGH-GRADE LINE OF
AIR COMPRESSORS
CONDENSERS AND
PUMPING MACHINERY

MANUFACTURED BY THE

Union Steam Pump Co.

BATTLE CREEK, MICH.

WE CAN SAVE YOU MONEY

We Invite Your Inquiries

WE HAVE THE RIGHT PRICE ON THE MOST MODERN LINE OF

ROAD MAKING MACHINERY**CAST IRON
AND
CORRUGATED CULVERT PIPE**

THE FINEST CATALOGUE FREE ON REQUEST

THE GALION IRON WORKS CO., Manufacturers, GALION, OHIO, U. S. A.

Southern Offices and Representatives:

THE GALION IRON WORKS CO., Manning & Pepper, Managers
1717 Third Nat. Bank Bldg., ATLANTA, GA.THE GALION IRON WORKS CO., W. L. Mercer, Manager
Kallahan Bldg., McCall St., MEMPHIS, TENN.

Manufacturers of

HIGH GRADE PAVING BRICK

COPELAND-INGLIS SHALE BRICK CO. Office, 610 1st Nat. Bank Bldg. BIRMINGHAM, ALA.

We Manufacture Locomotive Cranes Only
OHIO LOCOMOTIVE CRANE CO.
 BUCYRUS, OHIO

Southern Offices 175 Home Life Bldg. - - - Washington, D. C.
 1207 Brown-Marx Bldg. - - - Birmingham, Ala.

To keep in touch with Southern Development, read the Manufacturers Record.

AIR COMPRESSORS IN ALL SIZES

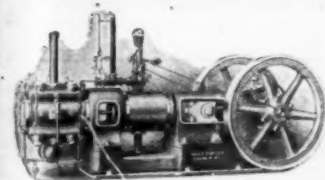
FOR EVERY REQUIREMENT

AMERICAN AIR COMPRESSOR WORKS,

26 Cortlandt St., New York

Agents, Southwestern—REEVES & SKINNER MCH'Y CO., St. Louis, Mo. Catalogue Gratis

"Peerless" AIR COMPRESSORS Catalogue
 AMERICAN COMPRESSOR & PUMP CO. Gratis
 11 S. FRONT ST., BALTIMORE, MD.

**AIR COMPRESSORS**

for continuous operation.

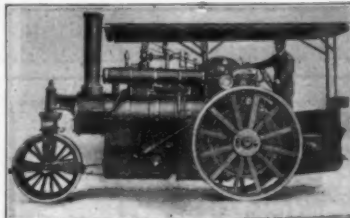
We make the best that skill, modern
 methods and complete knowledge on
 this subject can produce. If they don't
 do what we say, you needn't pay a cent.
 Different types and capacities.

Nagle Corliss Engine Works, Erie, Pa.

**THE KELLY-SPRINGFIELD
ROAD ROLLER CO.**

SPRINGFIELD

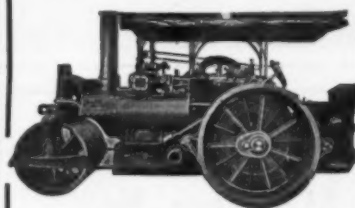
OHIO

**ROAD ROLLERS**ALL TYPES
ALL SIZES

SEND FOR CATALOGUE

Buffalo Pitts Rollers

BUILT FOR SERVICE

Made in all types and sizes for all purposes
2½ to 20 tons**BUFFALO STEAM ROLLER CO.**

BUFFALO, N. Y.

HIGH GRADE PAVING BRICK

Guaranteed to stand 18% standard test

THE CARLYLE PAVING BRICK CO.

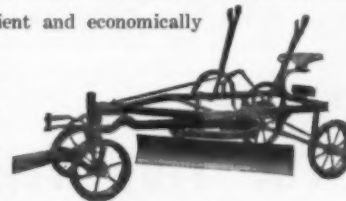
PORTSMOUTH, OHIO.

**THE GLIDE GRADER
DITCHER
LEVELER No. 1**
 A 2 HORSE. 1 MAN ROAD MACHINE

The Real Road Machine A Demonstrated SuccessThe lowest price, most practical, efficient and economically
operated machine on the market.

Best for grading, leveling and ditching.
 Will dig a V-shaped ditch 2 to 3 ft. deep.
 Weight 650 pounds. Strong enough for
 4 horses, if required.

Our No. 3 machine is larger and heavier.
 It is a 4-horse machine. Weighs 1150.
 One man can operate if necessary.



Write us today for catalogue and special good roads matter

GLIDE ROAD MACHINE COMPANY

543 Huron Street,

MINNEAPOLIS, MINN.

Only Machine That Successfully Sprays

All Light and Heavy Road Binders is the

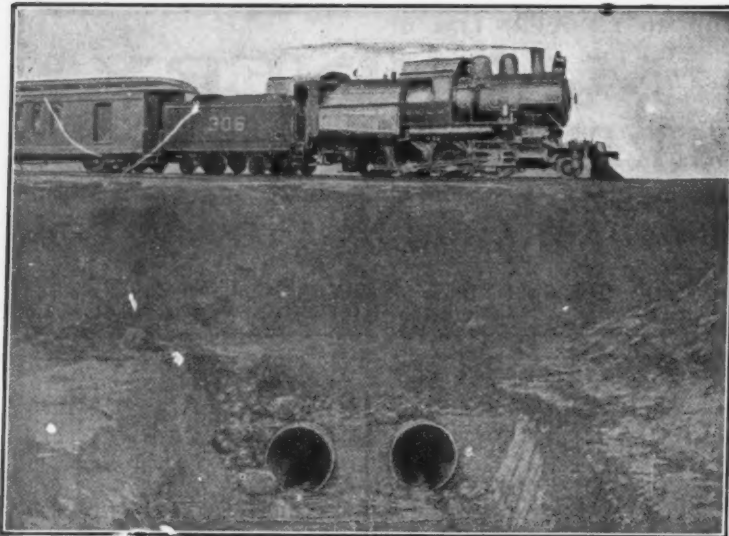
PILLSBURY SPRAYER

This machine consists of a detachable spraying device connected with steel tank
 wagon especially constructed to withstand internal pressure of steam or compressed
 air. The pressure is direct and gives an absolutely even application.

SIMPLE**DURABLE****ECONOMICAL**

Full Details and Prices on Request.

WALTER CRESSY,**Gloucester, Mass.**



METAL RAILROAD CULVERTS

APPROVED BY MANY
SOUTHERN RAILROADS

The strength, light weight and lasting qualities
of the

Virginia Metal Culvert

Make it the best culvert for all uses. Made of American
Ingot Iron. Guaranteed 25 years.

A HIGH GRADE CULVERT AT A LOW PRICE

Send for attractive illustrated catalogue.

VIRGINIA CULVERT & METAL CO., Inc.

Main Office and Factory, ROANOKE, VA.

BRANCH OFFICES, 324 Dickson Bldg., Norfolk, Va.
Robson Prichard Bldg., Huntington, W. Va.

Kalamazoo, Mich.
St. Joseph, Mo.
Lynn, Ind.
Denison, Texas.
Delphi, Ind.
Columbus, Miss.
Key West, Fla.

Lancaster, Ky.
North Star, O.
Chrisman, Ill.
Columbus, Ohio
Wise, Va.
Chicago, Ill.
Montgomery, Ala.

We have sent a train of TROY Engine
Hauled Wagons to each of these towns
since June 1st. Dozens of others are at
work in all parts of the country and under
all sorts of conditions. Every single train
is making good. "Making good" means
delivering material for 1/3 to 1/2 what it
costs with teams.

Let us tell you what the big red Reversibles can save for you.
Catalog 2M is the best road-building book ever got out—you
ought to have it whether you're in the market for Reversibles
or not.

The Troy Wagon Works Co.

106 East Race Street
TROY, OHIO

The Sales of This Season

Will make another record breaking year for us.
Last year's sales were large, but this year's

"The Biggest Ever"

It is all because the



**Eagle
Dump
Wagon**

and Dump Box suit
the users.

Ask for our 1912 Catalogue. It's now ready.

THE EAGLE WAGON WORKS

Auburn, N. Y.

P. S.—It looks now as if the Banner Sales for any city from January
to January would be taken by a Southern city. The Eagles suit every-
where.

H. STEVENS' SONS CO., Macon, Ga.

Manufacturers of

Sewer and R. R. Culvert Pipe

Fire Brick, Milled Clay Flue Pipe and Chimney Tops, Urns, &c.

Correspondence Solicited



INDESTRUCTIBLE SIGNS

For all country road, street, outdoor advertising, railroad, posted estates, and mill purposes
The letters are cut into iron 1-16" deep, and the finished sign has a black surface and white
letter. On wood the sign shows any combination of colors. The signs are made by a new automatic
machine which reduces cost one-half. Any size from 3 1/2"x6 to 12"x48". The only sign that will last
a hundred years. Send for sample letter and advice for what purpose you will use sign.

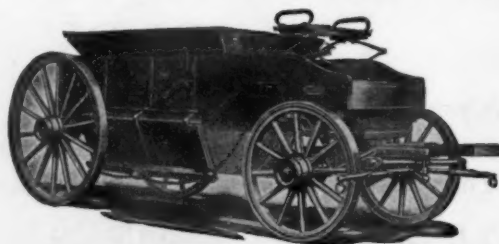
INDESTRUCTIBLE SIGN COMPANY,

33 Auburn St.

COLUMBUS, OHIO

OUR FULL LINE OF CONTRACTORS WAGONS AND CARTS

Are staunchly built for heavy con-
tract work, and although we guar-
antee free repairs for one year, it's
very seldom that we have to meet
this agreement. Our product pro-
tects us, and the guarantee pro-
tects you. The army of contractors
using these wagons know this as
well as we do.



Made in 1 1/4, 1 1/2, 2, 2 1/2 and 3-yard Capacities
Other Sizes Built to Order

This "Susquehanna" Dump Wag-
on is an example. The bottom
doors are sand-tight, lined with
sheet steel and hinged high, so
that there is ample room when the
load is dumped. The "Susque-
hanna" is five inches lower than
our old model, and is in every way
the most up-to-date wagon on the
market.

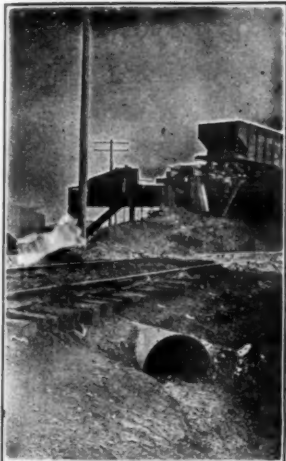
COLUMBIA WAGON CO.

COLUMBIA, PA., U. S. A.

American Ingot Iron CULVERTS

Low Cost
Quality

Economy
Efficiency



The question of Economy is vital to every Road Maker,—to the builder of Railways, or to the official responsible for the maintenance of our public highways,—and AMERICAN INGOT IRON CULVERTS are comparatively inexpensive.

The ultimate test of Economy is efficiency, and AMERICAN INGOT IRON CULVERTS are proven by their record in every department of Roadway construction.

It is our business and our pleasure to demonstrate these facts.

Ask for Catalogue Number Four.



**North Carolina
Metal Culvert Co.**
GREENSBORO, N. C.



These Corrugated Metal Culverts STAND THE STRAIN



The heaviest loads do not affect them.

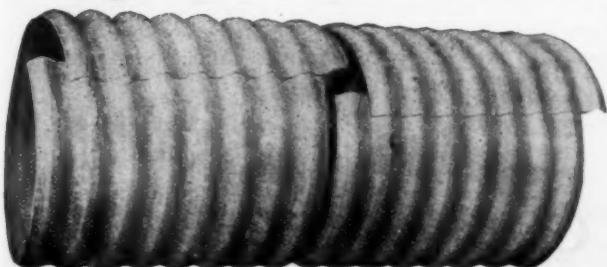
Carefully made and thoroughly tested before shipped.

Made of "American Ingot" Iron, they cannot rust. They make a permanent installation. They cost less than wood and are safer than their imitators. Used by the biggest railroads and the best road engineers. Write for "Book of Tests."

KENTUCKY CULVERT MFG. CO.

BUECHEL, KY.

Spiral Lock Joint Corrugated Metal Culvert



Each Section 26' Long. Screw together forming Culvert Any Required Length.

Made in diameters from 12" to 72". The lap is electrically welded, giving much more strength than rivets. We guarantee the metal to be the purest iron rolled into sheets.

Analysis furnished on request or with each order. We also guarantee the gauges to be as represented in order, also efficient workmanship.

BIRMINGHAM METAL PRODUCTS CO.

601-2-3-4 Woodward Building

BIRMINGHAM, ALA.

"ACME" (NESTABLE) CORRUGATED CULVERTS

(PATENTED)
MADE OF
ANTI-CORROSIVE GALVANIZED SHEETS



As a Culvert Buyer
You Should Consider—

gauge of material, strength, durability, convenience of handling, simplicity of setting up and installing, anti-corrosive qualities and Right Price.

If all makes of Culverts were equally good there wouldn't be any advantage in your buying

the "ACME" nor in our trying to interest you in it. But all Culverts are NOT alike—and we build our hopes of making you an "ACME" convert on just your bitter experience with other and poorer makes.

Let us better acquaint you with the merits of ACME (NESTABLE) Culverts. Let us send our booklets "M-9" and "R-9." Simply a word from you that you are interested and we will do it promptly and cheerfully.

For quotations for delivery in North and South Carolina, address—
THE CAROLINA METAL PRODUCTS COMPANY, Manufacturers in Wilmington, N. C.
For quotations for delivery in Virginia, West Virginia and Maryland, address—
DOMINION METAL PRODUCTS CORPORATION, Manufacturers in Roanoke, Va.

THE CANTON CULVERT CO.
MANUFACTURERS
CANTON, OHIO, U.S.A.

"HARRY'S" CORRUGATED GALVANIZED CULVERTS

MADE OF



"Genuine Open
Hearth Iron"

Strongly Resist Rust and
Corrosion

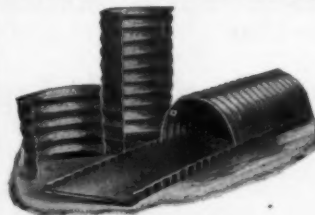
WE WOULD LIKE TO REFER
YOU TO

Actual Service Tests

A BRAND-NEW CATALOG
ON REQUEST

HARRY BROS. CO.
New Orleans, La. Newport, Ky.

THE PROGRESSIVE CULVERT



A Corrugated Metal Arch securely locked to cast-iron base.

Strongest Culvert Construction
in the World

A perfectly smooth waterway.

No bolts or rivets. Shipped nested.

State rights may be secured so that castings may be made by local foundries. Agents wanted.

American Culvert Mfg. Co.
BUECHEL, KY.

Patented June 13, 1911.

American Ingot Iron Road Culverts, Tanks, Roofing and Siding.



Look for the trade mark. It means durability. Don't accept the imitations. We have the proof that our culverts will carry the heaviest loads that travel and will last for years where others fail. Write for Pamphlet A on AMERICAN INGOT IRON and B on culverts and tanks.

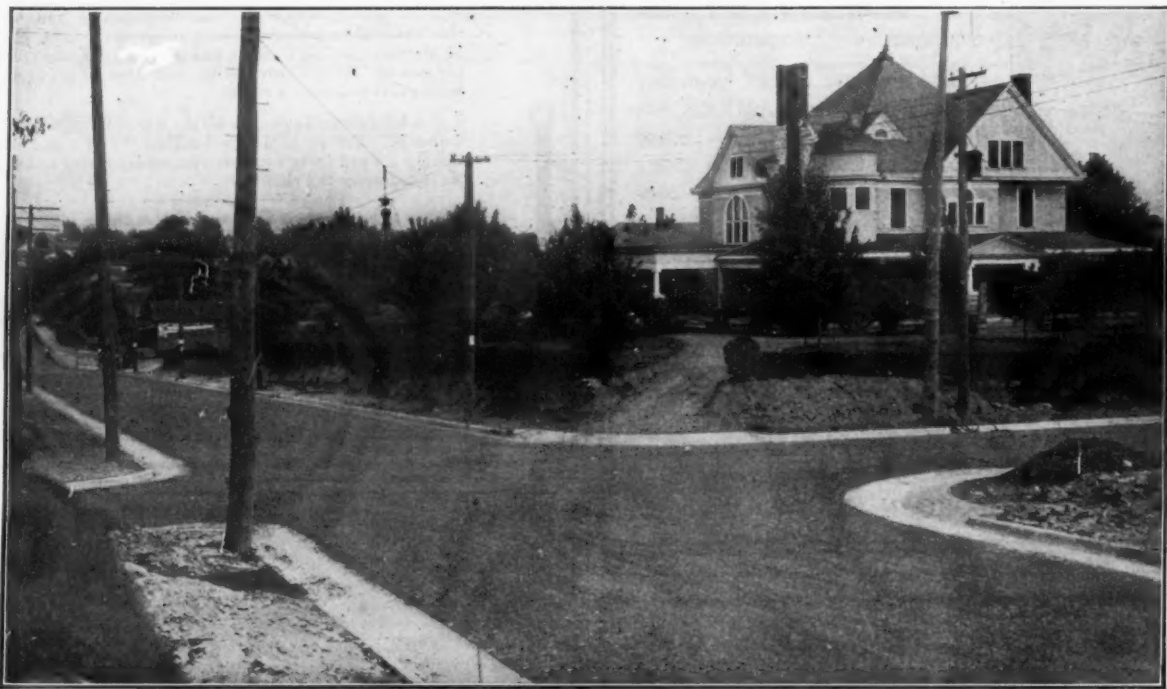
The Tennessee Metal Culvert Co., Nashville, Tennessee.

STANDARD

Asphalt Macadam Binders

and

Asphalt Road Oils



Morehead Ave. and Duke St., Durham, N. C.—Treated With Standard Asphalt Macadam Binder

STANDARD ASPHALT BINDERS are made in three grades, "A," "B" and "C," for use under varying conditions of road maintenance and construction.

These products are absolutely pure, containing over 99% bitumen, and can be manufactured to any consistency desired. The three grades "A," "B" and "C" will be found to solve all problems of road surfacing or road construction that are ordinarily met with.

BINDER "A." A semi-solid product to be applied hot over stone or gravel roads subjected to heavy automobile travel. A covering of sand or screenings is necessary after Binder "A" is applied.

BINDERS "B" AND "C." Solid products used for road construction under the penetration or mixing methods—many hundreds of miles of roads in all sections of the country speak for the uniform success of these products in producing **DUSTLESS, PERMANENT ROADS.** BINDER "C" is slightly harder than BINDER "B" and is used in sections subjected to long continued heat.

Standard Asphalt Road Oils

STANDARD ASPHALT ROAD OILS are made with varying percentages of asphalt, from the lightest, containing 30% asphalt, to the heaviest, containing 60% asphalt. Used under all conditions necessitating freedom from dust and protection of surface.

A full description of our various products, together with specifications for their correct use, is given in our Illustrated Booklet. This will be sent free upon request.

STANDARD OIL COMPANY

(Incorporated in New Jersey)

ROAD OIL DEPARTMENT

Baltimore, Md.

Newark, N. J.

BRANCH OFFICES:

Richmond, Va. Norfolk, Va. Charlotte, N. C. Charleston, W. Va. Washington, D. C.

Tarvia

*Preserves Roads
Prevents Dust~*



Boulevard—East Side Mississippi River— Minneapolis, Minn. Road treated with Tarvia A.

Tarvia "makes good" in Minneapolis

MINNEAPOLIS has been using Tarvia since 1907—and is using it still. On November 24, 1911, Mr. Theodore Wirth, Superintendent of the Board of Park Commissioners, Minneapolis, wrote—

"The Tarvia applied on Minnehaha Avenue in October, 1907, gave very satisfactory results. The application was made under the most ideal conditions, the new road-bed being just right to receive the binder and the screenings used for covering being of excellent quality. The surface withstood the traffic well and although the treatment has not been repeated, the road-bed is *still in fairly good condition*.

The 46th St. section of King's Highway was similarly treated in September, 1908, but in place of using stone screenings for covering, we used a fine pea gravel, which gave a pleasing color and a still better wearing surface.

The last piece of tarviating we did was on the new River Road, East from Franklin Ave., South to the city limits, where we also used pea gravel for dressing over Tarvia coating, with the same excellent results.

This road was finished in June, 1910, and has been in constant use ever since by an immense amount of automobile traffic. I hope to be able to treat this road again with Tarvia next Spring. I am *well pleased* with the results of Tarvia on our roads.

There are three kinds of Tarvia—Tarvia X for road and pavement construction, Tarvia A for surface work and Tarvia B for dust suppression and road preservation.

Booklet describing these treatments free on request.

Barrett Manufacturing Company

New York Chicago Philadelphia Boston St. Louis Cleveland Pittsburgh
Cincinnati Kansas City Minneapolis New Orleans Seattle London, Eng.
The Paterson Mfg. Co., Limited:—Montreal, Toronto, Winnipeg, Vancouver, St. John, N. B., Halifax, N. S.





Barrett's PAVING PITCH



Courtyard of U. S. Government Printing Office. Barrett's Paving Pitch used to make pavement watertight.

In A Government Courtyard

THE life of a pavement depends largely upon the degree in which its foundation is protected against disruption by water and frost. That, for instance, is why sand filler is so unsatisfactory. Something must be used which will fill the joints and seal up all openings.

For this purpose, Paving Pitch is ideal on account of its plasticity. The fact that it is applied in liquid form in itself guarantees a perfect seal at the beginning. It remains plastic and when the joints widen as the blocks contract in cold weather, the pitch adjusts itself and maintains perfect adhesion to the blocks.

If the seal is broken, as when excavations are made in the pavement, the pitch will automatically heal up the breach.

Asphalt is inferior to pitch for this purpose because it has little adhesive power, is brittle in cold weather and cleaves

away from the blocks. Cement filler is inferior to pitch, because, being rigid, it cracks.

The above photograph shows Barrett's Paving Pitch being applied to a pavement in the Courtyard of the Government Printing Office at Washington. This court takes very heavy traffic, as all the paper and supplies of the office traverse it. It was especially necessary that this pavement be absolutely watertight, because it is over a vault in which is stored a million dollars worth of paper.

Asphalt mastic was used previously, but was unsatisfactory.

Foundations of ordinary pavements are not always so precious, but when they can be protected against deterioration cheaply and easily by the use of Pitch filler, why not use it?

Booklets on request.

BARRETT MANUFACTURING COMPANY

New York	Chicago	Philadelphia	Boston	St. Louis	Cincinnati	Cleveland
Pittsburgh	Minneapolis	Kansas City	New Orleans	Seattle	London, Eng.	

Requires no additional fuel.



**Vertical Section
of
Thompson Crematory**

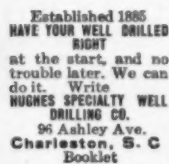
Manufacturers of

RAILROAD STAND PIPES.
RAILROAD TANK VALVES AND TANK
FIXTURES.
FLOAT OR AUTOMATIC INLET VALVE
FOR TANKS.
SWITCH STANDS FOR ALL PURPOSES.
WATER METERS.

Write for Catalogue

Highest efficiency
Both CYLINDER and REGISTER Gate
Write for catalog

Davis Foundry & Machine Works
ROME, GA.



Hydraulic Engineers.

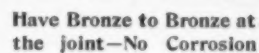
McCORMICK TURBINES.

See Illustrated ad. in last and next issues.
Branch Offices—176 Federal St., Boston.
Chicago Office, 644 American Trust Bldg.

ENGINEERS AND CONTRACTORS FOR

No. 112 NORTH BROAD STREET, • • • PHILADELPHIA

Manufacturers of PHIPPS' HYDRAULIC PIPE



This construction is embodied in our Flange Elbow, Tee, Male and Female and Air Pump Unions. Ask for circular and sample.

E. M. Dart Mfg. Co.
PROVIDENCE, R. I.

THE FAIRBANKS CO., Agents
Canadian Factory, Dart Union Co.,
Ltd., Toronto.

Thoroughly Vitrified. None Better Vitrified Wall Coping and other Clay Products. Annual Capacity 1900 cars.

POMONA TERRA-COTTA CO. POMONA, N. C.

- (a) Brass to iron thread connection—No corrosion.
- (b) Brass to iron ball joint seat—No gasket.
- (c) 125 pounds compressed air test under water—No defective fittings.
- (d) Solid, three piece construction—No inserted parts.
- (e) Easily disconnected—No force required.



OTHERS DO Why Don't You? Use Wyckoff Wood Pipe

BIG USERS

Erie R. R.
D. L. & W. R. R.
Penna. R. R.
P. & R. R. R.
L. V. R. R.
N. Y. Central
B. & M. R. R.
El Paso & Southwestern
(40 miles)
B. & S. R. R.
B. & O. R. R.

BECAUSE

It is *Durable, Economical, Convenient, Efficient*, does not Rust, Rot, Scale or Corrode. Uninjured by chemicals, electrolysis or frost.

WRITE FOR CATALOG

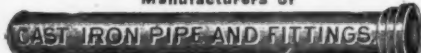
A. WYCKOFF & SON COMPANY
ELMIRA, N. Y.

Johnson-Peter Co., Pittsburgh Terminal Warehouse, Pittsburgh, Pa.



AMERICAN CAST IRON PIPE CO.

Manufacturers of



BIRMINGHAM

Sales Offices:

ALABAMA

716 Scarritt Building, Kansas City, Mo. 416 Praetorian Building, Dallas, Texas
No. 1 Broadway, New York City 461 Market Street, San Francisco, Cal.
Box 908, Birmingham, Ala.

IF YOU WANT FIRST-CLASS

SEWER PIPE

Send your inquiries to the
CANNELTON SEWER PIPE CO.

MADE OF FIRE CLAY

Cannelton, Indiana



McWANE PIPE WORKS

MANUFACTURERS OF

CAST IRON PIPE

For WATER and GAS WORKS

FLANGED PIPE AND SPECIAL CASTINGS FOR MINES AND MILLS

MAIN OFFICE—LYNCHBURG, VA.

New York—1 Broadway. Chicago—537 The Rookery San Francisco—461 Market St.
FOUNDRIES—LYNCHBURG, VA.; RADFORD, VA.

Sticking to the Ways of One's Grandfather Never Achieved Progress

Nowadays, we use the railroad train instead of the stage coach, the automobile instead of the horse and buggy, the telephone and telegraph instead of the pony express. Everything that is modern and progressive is used in preference to the antiquated way of doing things which was adequate in its time, but would not stand the test today.

The progressive and up-to-date water works man uses

"LEADITE"

Registered U. S. Patent Office

For Jointing Cast Iron Water Mains

Because it gives a perfect joint that grows stronger the longer it is in service and saves money in material, time and labor.

Leadite has been on the market for seven years.

One ton of Leadite is equivalent to four tons of lead.

Trench pumping expense reduced to the minimum. Cost of bell-holes practically eliminated.

NO CAULKING is required when you use Leadite—pour the joint and it is finished. You know what this means when going through rock or bad ground. Facilitates rapid progress of the work.

Leadite makes an economical and effective joint. Its use cuts your jointing material account 50% to 65%, owing to saving effected in material and labor.

Write for booklet. Specify Leadite.

"Leadite Joints Increase in Strength with Age"

THE LEADITE COMPANY, Inc.

Land Title Bldg., Philadelphia, U. S. A.

Cast Iron PIPE

in all regular sizes, 3 inch to 84 inch

FOR

WATER
GAS

SEWAGE
DRAINS

CULVERTS
Etc.

FLANGED PIPE FLEXIBLE JOINT PIPE
SPECIAL CASTINGS LARGE CYLINDERS
HEAVY CASTINGS

United States Cast Iron Pipe & Foundry Co.

GENERAL OFFICES:

71 Broadway, - - New York

New York Sales Office, 71 Broadway, New York.

Philadelphia Sales Office, 1421 Chestnut St., Philadelphia.

Pittsburgh Sales Office, Henry W. Oliver Bldg., Pittsburgh.

Western Sales Office, 122 So. Michigan Boulevard, Chicago.

Southern Sales Office, Chamberlain Bldg., Chattanooga, Tenn.

Pacific Sales Office, Monadnock Bldg., San Francisco, Cal.

Glamorgan Pipe & Foundry Co.

LYNCHBURG, VA.

Manufacturers of



FOR WATER AND GAS

SPECIAL CASTINGS

Flanged Pipe and Flanged Specials

General Founders and Machinists

GLAMORGAN

GLAMORGAN

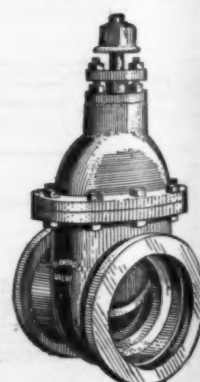


Glamorgan "Patented"
Compression Hydrants
Gate Hydrants

VALVES

FOR

Water, Gas and Steam



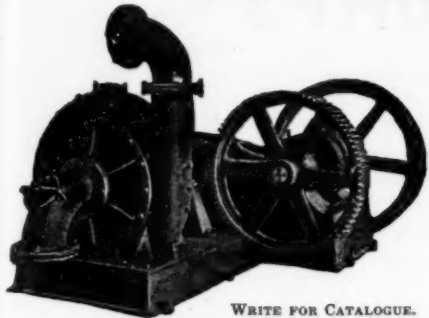
HYDRANTS.

VALVES.

We solicit inquiries for Grey Iron Castings
of any description.

MORRIS MACHINE WORKS

BALDWINVILLE, N. Y.

Centrifugal Pumping Machinery and Steam Engines

Specially Designed
PUMPS
FOR
Phosphate Mining,
Rice Irrigation,
Cotton Mills,
Etc.

WRITE FOR CATALOGUE.

NEW YORK OFFICE—39-41 Cortlandt St.

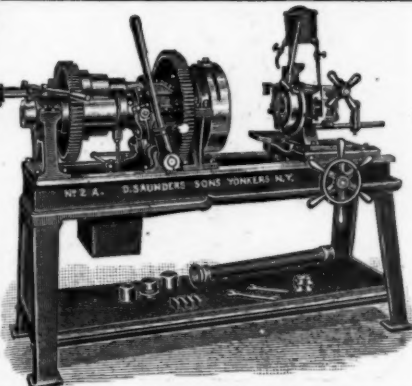
HENION & HUBBELL, Agents, 223-231 North Jefferson Street, Chicago, Ill.
THOMAS B. WHITTED, General Manager, Charlotte, N. C.
HARRIS PUMP & SUPPLY CO., Agents, Pittsburg, Pa.
CAMERON & BARKLEY CO., General Agents, Charleston, S. C., and Tampa, Fla.
H. A. PAINE, Agent, Houston, Tex. J. H. MURPHY, Agent, New Orleans, La.

PIPE CUTTING AND THREADING MACHINES

All Sizes for Pipe Mills
Gas and Steam Fitters

This cut shows our No. 2A Improved Pipe Threading, Cutting and Nipple Machine. Range $\frac{1}{4}$ to 2, inclusive. Pipe can be gripped or loosed without stopping the chuck, by a simple movement of the lever.

Send for Literature.

**D. SAUNDERS' SONS, Inc., YONKERS, N. Y.****COLUMBIAN IRON WORKS**
CHATTANOOGA, TENN.

MANUFACTURERS OF

Fire Hydrants, Valves, Valve Boxes,
Sluice Gates, Meter Boxes and
Water Works Supplies

Also Municipal and Building Castings

ESTIMATES PROMPTLY FURNISHED



The Bourbon Copper and Brass Works Company

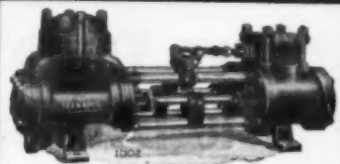
MANUFACTURERS OF

FIRE HYDRANTS and STOP VALVESWater Works and Fire Department
Supplies and Extension Valve Boxes

Long Distance Phone, Canal 3297. 618 and 620 E. Front St., Cincinnati, O.

**THE POOLE-LEFFEL TURBINE WATER WHEEL**

Reasonable price. Unequalled workmanship. Made for a variety of purposes, under various conditions. On the market for 40 years. Special wheels made to order. Let us hear from you.

Poole Engineering & Machine Co.
Baltimore, Md.ENGINEERS FOUNDERS MACHINISTS
Gears, Castings, Power Transmission Goods**DURABLE DUPLEX PUMP**

This pump has the simplest valve movement that has been devised for DUPLEX PUMPS.

Send for Catalog No. 55

Steel Forged HYDRAULIC PUMPS

Jet and Surface CONDENSERS

DEAN BROS. STEAM PUMP WORKS
INDIANAPOLIS.

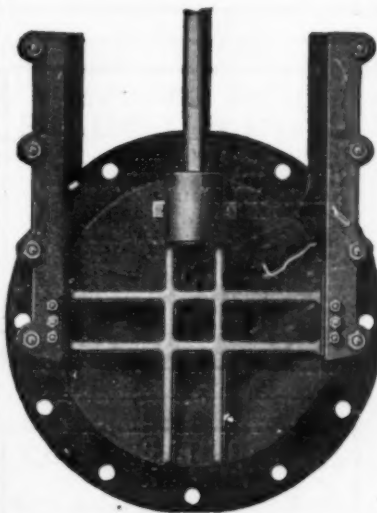
NOT IN THE PUMP TRUST



ALL the WATER a
WELL will yield, with
least possible cost of
operation and upkeep.

PUMPS

for every condition.
Recommendations and
estimates gladly given.
Write for Bulletin 14.

HARRIS AIR PUMP CO.
INDIANAPOLIS, IND.**SLUICE GATES**

ALL STYLES AND SIZES

Hand, hydraulic and electric
hoisting mechanism.

Designs
and
Estimates
Furnished

Send
for
Catalogue

COLDWELL-WILCOX CO.

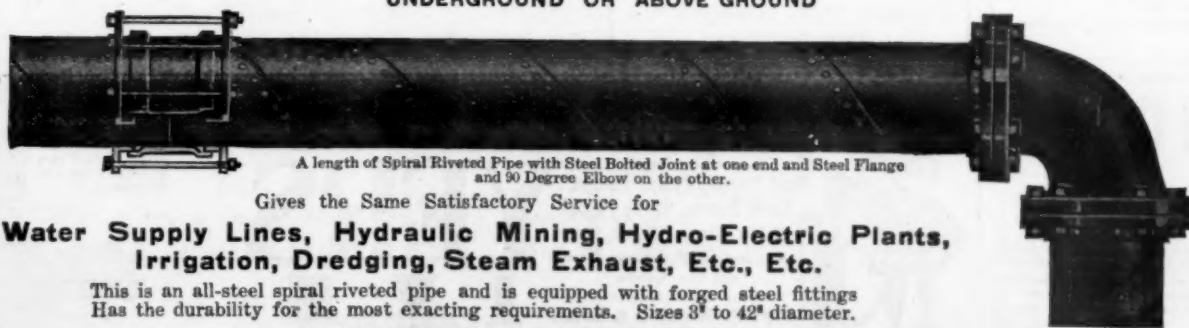
2 River St.

NEWBURGH, N. Y.

For Severe Service Specify

TAYLOR'S SPIRAL RIVETED PIPE

UNDERGROUND OR ABOVE GROUND



A length of Spiral Riveted Pipe with Steel Bolted Joint at one end and Steel Flange and 90 Degree Elbow on the other.

Gives the Same Satisfactory Service for

Water Supply Lines, Hydraulic Mining, Hydro-Electric Plants,
Irrigation, Dredging, Steam Exhaust, Etc., Etc.

This is an all-steel spiral riveted pipe and is equipped with forged steel fittings
Has the durability for the most exacting requirements. Sizes 3" to 42" diameter.

Inquiries solicited. Get Catalogue No. 5-H, 80 pages, illustrated.

AMERICAN SPIRAL PIPE WORKS, Main Office and Works, CHICAGONEW YORK OFFICE
50 Church Street

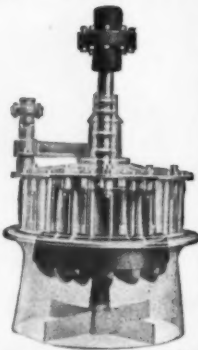
Have You a Water-Power to Develop?

If you are contemplating the development or improvement of a water-power it is to your interest to write us. Our competent hydraulic engineers shall be glad to give you any information that you may need about the installation of water turbines.

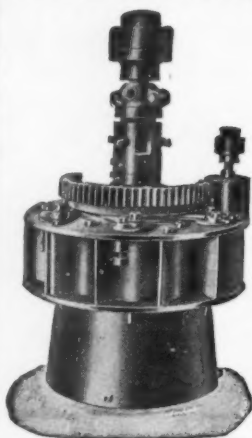
Samson Turbines use the water economically; the speed is quick and steady; they develop great power.

Write us today for catalog.

James Leffel & Co.
310 Lagonda St. Springfield, Ohio



AJAX WATER WHEELS



Will give results not excelled by any. By reason of the new arrangement for operating gates, we have the most efficient wheel at part gate.

High power. High speed. First class in every particular.

Write for Catalogue

We Also Build Flour and Corn Mill Machinery

Write for information

Salem Foundry & Machine Works
SALEM, VA.

DOWNIE DEEP WELL PUMPS

The best and cheapest source of water for Ice Manufacturing is the deep Artesian Well. Saves Sterilizing and Cooling. Approximate difference in temperature 15°.

The best and cheapest means of elevating water from Artesian Wells is the Downie Deep Well Pump. See Catalog No. 6.

Incidentally the best and the cheapest machine for sinking Artesian Wells is the Keystone Drilling Machine. Catalog No. 1.

The guaranteed efficiency of our

Double Stroke Pump

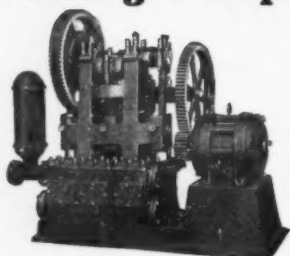
is { Geared Heads - 80%
Steam Heads - 60%

No. 35. Double Stroke Geared Head, capacity 25,000 gals per hour at a depth of 250 feet, using 10 3/8 in. working barrel.



Keystone Pump & Well Engine Co.
Beaver Falls, Pa.

Deming Pumps



Deming Triplex Power Pump, direct connected to electric motor.

Ask for our general Catalogue of hand, wind-mill, power and spray pumps, or write us your specifications.

The Deming Company
SALEM OHIO
HAND AND POWER PUMPS

GENERAL AGENCIES:

Henion & Hubbell, Chicago
Sydnor Pump and Well Co., Richmond
Dunn Machinery Co., Atlanta
Moore & Handley Hdwe. Co., Birmingham
Laib Co., Louisville, Ky.

KEYSTONE CABLE DRILLS

For Artesian Water Wells; Oil, Gas and Mineral Test Wells; Blast Holes in Heavy Excavation. A complete line of Traction and Portable Machines, all depths to 2500 feet.



In writing for catalogue describe work.

Keystone Steam Well Machine Co.
BEAVER FALLS, PA.

26 YEARS EXPERIENCE DRILLING

Artesian Wells and are equipped for drilling from 100 to 1500 ft. deep, any locality, also

INSTALLING

complete water plants and
ERECTING
steel structures, wooden tanks and windmills

LET US QUOTE YOU

STOTHOFF BROS., Flemington, N. J.
Telephone 94

The Cook Well Co.

No. 13 S. 4th St.
ST. LOUIS, MO., U. S. A.

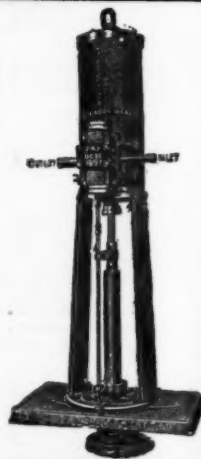
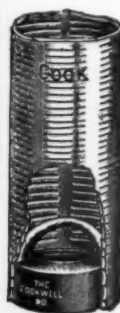
Cook's System of Wells

For Cities, Towns, Villages, Railroads, Ice Plants, Breweries and Manufactories.

COOK'S PATENT BRASS TUBE WELL STRAINER

COOK'S DEEP WELL PUMPING ENGINES

Estimates furnished upon application.
Write for catalogue and prices.



R. D. WOOD & CO.

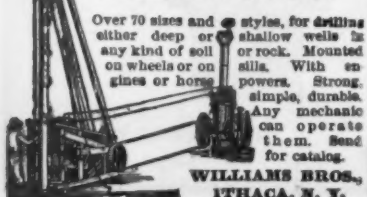
400 Chestnut Street, Philadelphia, Pa.

CENTRIFUGAL PUMPS

ALL SIZES, BELT DRIVEN AND DIRECT CONNECTED

For Irrigation, Tanneries, Mine Drainage, Phosphate Mining, Circulating Water for Condensers, &c., &c.

Well Drilling Machines



Over 70 sizes and styles, for drilling either deep or shallow wells in any kind of soil or rock. Mounted on wheels or on skids. With engines or hand power. Strong, simple, durable. Any mechanic can operate them. Send for catalog.

WILLIAMS BROS., ITHACA, N. Y.



Take off your Hat to the

Well Pumps, Power Pumps, Tank Pumps, Spray Pumps With Glass Valve Seat A Line Without an Equal on the Globe

Write for Circulars and Prices to
F. E. MYERS & BRO.
ASHLAND, OHIO, U. S. A.

MYERS

The Pump that **PUMPS**

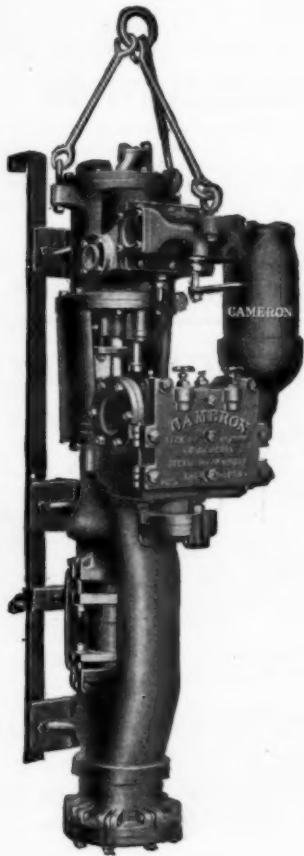
HAY BARNDOR HANGERS HAY RACK CLAMPS

THE MYERS BULLDOZER POWER PUMP
Made in different sizes. Cylinders from 2 1/2 to 6 ins. Strokes from 5 to 30 inches.



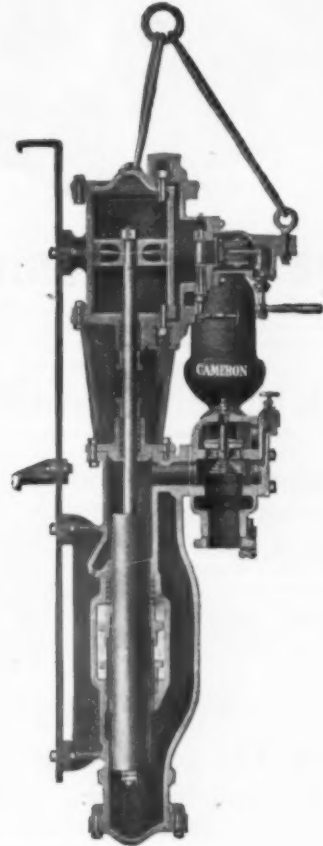
THE MYERS BULLDOZER WORKING HEADS, PUMPING JACKS, CYLINDERS, ETC.

THE SLOGAN OF THE CAMERON—"CHARACTER: THE GRANDEST THING"



Cameron Pumps

*The Vertical
Plunger Pattern*



Can Be Depended Upon at Critical Times

You pay more for a Cameron Pump than for an ordinary pump to get *more*—you get more service, greater reliability, higher efficiency. The Cameron Pump can be depended upon not only for the ordinary day after day routine of work, but it can also be depended upon when the strain comes at critical moments. When the call for extra strength and reliability comes the Cameron Pump is right there—ready.

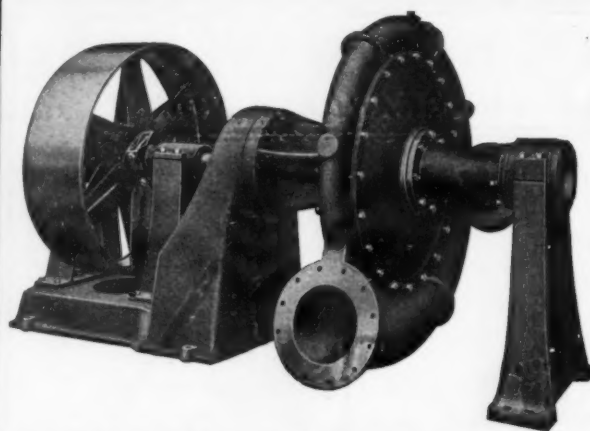
These qualities are in no case more necessary than in a Sinking Pump. The Cameron Vertical Plunger Pattern, shown above, has fewer working parts than other steam pumps. Therefore, these fewer parts can be made stronger, more durable, more prepared to stand the strain.

The Steam Mechanism consists of four stout pieces only, and there is no outside Valve Gear. As the Steam Valve movement works without arms or levers the CAMERON can be run faster, without danger of breaking, than any other steam pump.

*If you are a pump user send for our Catalog No. 21.
It illustrates and describes all types of Cameron Pumps.*

A. S. CAMERON STEAM PUMP WORKS

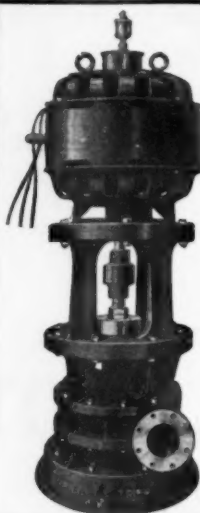
11 Broadway - - New York



THE IDEAL
PUMP FOR
IRRIGATING
and
DRAINAGE

Suction and
Discharge
set at angles
to conform
to surface of
land, elimi-
nating sev-
eral fittings.

ERIE PUMP & ENGINE WORKS, ERIE, PA.



Segregated Pumping

The accompanying illustration is a view of

The Hill-Tripp Vertical Thrust Turbine Combination Deep Well Pumping Unit

This Pump is just what the name suggests, a Combination of all the vital features of The Hill-Tripp Vertical Thrust Standard Lift Unit, and a high-grade Turbine or Centrifugal Pump. As applied to Water Works service for domestic use it provides

ABSOLUTE SANITATION

The water being forced from Nature's reservoir in the earth directly into the service mains without exposure to the surrounding air at any time, positively prohibits contamination. Limited space does not permit us to go into details concerning the many other advantages of this unit, but a line from you will bring full particulars.

THE HILL-TRIPP PUMP CO.
Main Office and Factory, ANDERSON, IND.

Deane of Holyoke

Duplex Power Vacuum Pumps

for Suction Boxes, Vacuum Pans, Evaporators and Condensers.

Another part in the "Most Complete Line of Power Pumps in the World."



This part is described in Bulletin D-93-29.

THE DEANE STEAM PUMP CO.
115 Broadway, New York Works: Holyoke, Mass.
Branch Offices in all Principal Cities

D183.1

THE JOHN H. MCGOWAN CO.

BUILDERS OF

SINGLE

DUPLIX



PUMPS

FOR

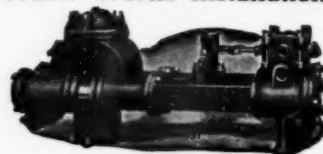


Mills, Mines, Phosphate Plants, Power Stations and Water Works Installations

BOOKLETS

303

SINGLE PUMPS



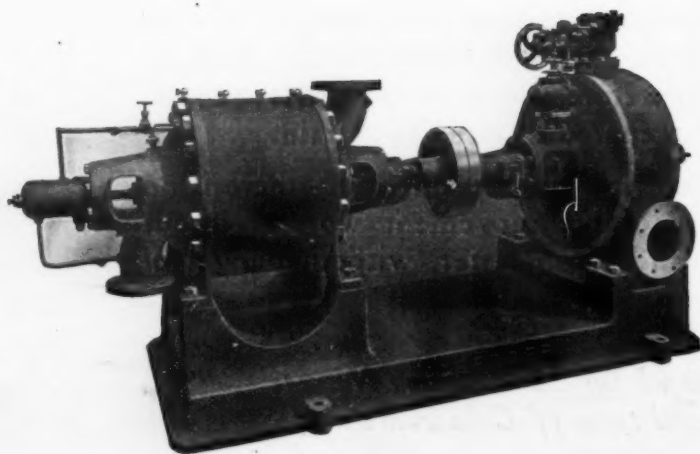
PAMPHLETS

313

DUPLIX PUMPS

CINCINNATI, O.

ALBERGER CENTRIFUGAL PUMPS



Our line comprises volute, single and multi-stage turbine, condenser, boiler feed and all other kinds of centrifugal pumps. They have special features resulting in high efficiency, and making them just the pumps for constant day-in and day-out service. Especially adapted to Electric Power Stations, Water Supply for Cities and Towns, Mines, Irrigation, Iron and Steel Plants, etc.

We make a complete study of plants and plan, estimate and contract for any kind of pumping equipment.

Illustrated Pump Catalogue gladly sent anyone on request.

Alberger Pump & Condenser Co. 140 Cedar St. New York City

PITTSBURGH

SAN FRANCISCO

ST. LOUIS

CHICAGO

"THE STANDARD" SCALES

Almost all of the material used in the manufacturing world is bought or sold by weight. Consequently it is up to every manufacturer to have scales that can be depended on to weigh right all the time. It isn't enough to know that your scales will weigh right when they are first set up. You want to know that they are going to stay right.

"The Standard" Scales are made right, will weigh right today, tomorrow and next year.

And besides this, they are sold at a price that is right, and the price is not controlled by any "Trust." Tell us what kind of a scale you want, and we will tell you more about them, and how you can save money, and gain in quality by buying "The Standard" Scales.

The Standard Scale & Supply Co., 243-245 Water St., Pittsburgh, Pa.

BRANCHES:

CHICAGO

CLEVELAND

PHILADELPHIA

CINCINNATI

ST. LOUIS

NEW YORK

HOWE SCALES



WE MAKE A SPECIALTY
OF SCALES FOR
RAILROADS
OIL MILLS
AND FERTILIZER WORKS

Our scales contain every improvement known to modern science in the manufacture of heavy weighing machines.

HOWE SCALE CO. 341 Broadway, N. Y.

RUSE & THOMPSON

Successors to John C. Scherer, Jr., Co.

9 and 11 N. Gay St., Baltimore, Md.

DESIGNERS AND MANUFACTURERS OF
Bank, Store and Office Fixtures and Furniture

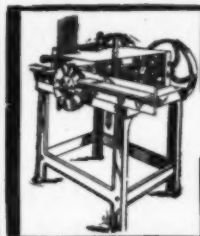
Write for estimates before placing order.

Our 8-Block Machine



produces finest to coarsest excelsior with less power and less expense per ton than any other machine made; also makes more and better excelsior. This can be easily proved. Let us send catalogue.

LEWIS T. KLINE, ALPENA, MICH.



40,000 LATHS PER DAY

ON OUR

IMPROVED LATH MACHINE

Just write us that you saw it and
want to see it saw

CHASE TURBINE MFG. CO., ORANGE, MASS.

FOR THE PREVENTION OF SAP-STAIN OR BLUING OF LUMBER

WE RECOMMEND OUR

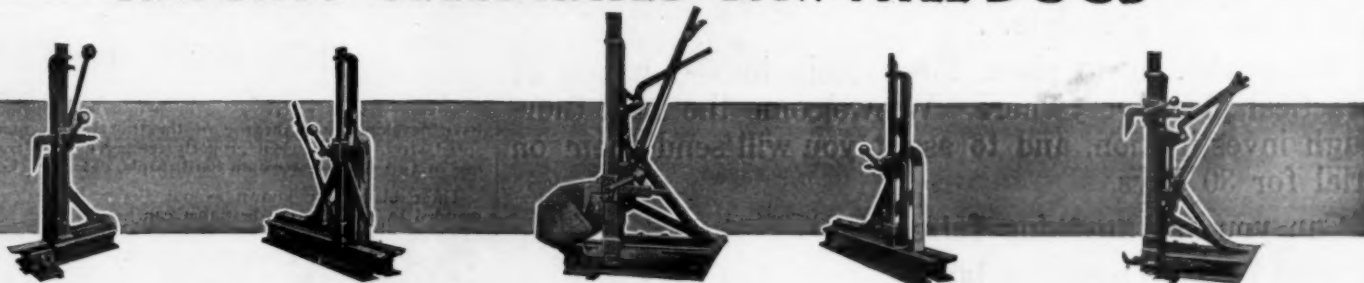
ZENITH BRAND BI CARBONATE SODA



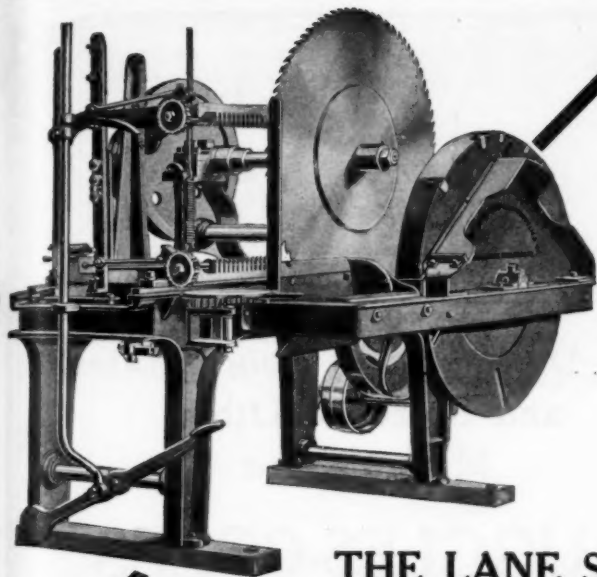
THE COST IS NOMINAL. NO EXPENSE FOR KILNS. NO FIRE RISK.
WRITE FOR PRICES, FREIGHT AND FULL PARTICULARS.
HIGHEST TEST GUARANTEED.

CHURCH & DWIGHT CO. MANUFACTURERS, 27 CEDAR ST. NEW YORK;
ESTABLISHED OVER 70 YEARS.

KNIGHTS CELEBRATED SAW MILL DOGS



THE KNIGHT MFG. CO. Canton Ohio



The LANE Shingle and Heading Machine

**HOLDS THE WORLD'S RECORD
FOR A SINGLE BLOCK MACHINE**

On it over 50,000 shingles have been sawed and jointed by one operator in a day of ten hours.

THE LANE SHINGLE MACHINE AND JOINTER

is built to do hard work, and lots of it. It is simple in design and of strong and durable construction. There is no complicated cam, gear or clutch mechanism to get out of order. Its QUICK RETURN MOTION is the original Whitworth motion, which has stood the test of time and not been found wanting in any way.

It Has a Safety Stop

which protects the operator when putting in a new block by preventing the carriage from starting until the guard is swung around out of the path of the saw. We build four sizes: they will cut both tapering and parallel stock, and they are ALL FULLY GUARANTEED.

SEND FOR OUR CATALOG

LANE MANUFACTURING CO.

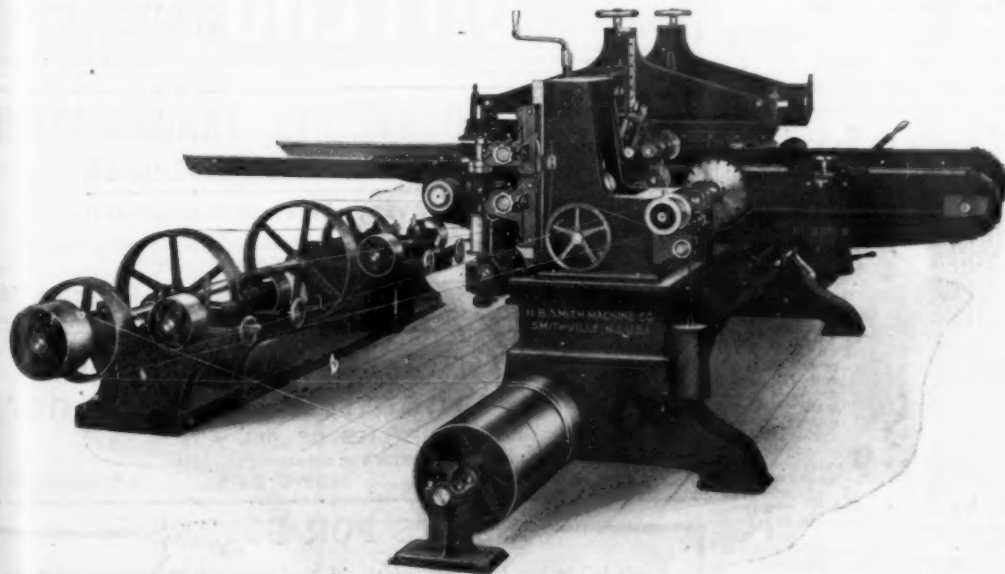
MONTPELIER, VERMONT

Good, live, responsible Machinery Dealers wanted to represent us in sections not already covered

12



Woodworking Machinery



Single-End

Tenoners Patented 1852

Double-End

Tenoners Patented 1866

Made in Forty Different
Sizes and Styles.

Thousands in use all over
the world.

Send for Literature.

Address

H. B. Smith Machine Co.
Smithville, N. J., U. S. A.

Branches:

New York, Chicago, Atlanta, San Francisco.

VICTOR DOUBLE-END TENONING MACHINE WITH DETACHED COPE COUNTER-SHAFT.

Why Not MAKE MONEY Out of YOUR WASTE PILE



THE OBER LATHES

Will Help You

TURNING LATHES, SANDERS, RIP AND CUT-OFF SAWS, Etc.

CATALOGUE FREE

THE OBER MFG. CO.

18 Bell Street

Chagrin Falls, Ohio, U. S. A.

Slow Speed, Low Power Blower Systems

SOUTH ATLANTIC BLOW PIPE & SHEET METAL COMPANY

BLOW PIPE ENGINEERS

SAVANNAH

ATLANTA

JACKSONVILLE

HOE CHISEL TOOTH SAWS

A full stock of these splendid Saws. Bits and Shanks.
Best for profit making. Ask us why.

SYDNOR PUMP & WELL CO., Inc., Dept. M. R.
RICHMOND, VA.

Gerlach Modern Machines

Prepare the Cheapest and Best

COOPERAGE STOCK

and BOX SHOOKS

Circular, Band and Cylinder Saws

SAW AND LOG TOOLS

THE PETER GERLACH CO., Cleveland, 6th City, U.S.A.

LUMBER STACKERS SOULE STEAM FEEDS

DOGS, LUMBER
BUGGIES, ETC.

SOULE STEAM FEED WORKS

MERIDIAN, MISS.

Write for Catalog "M"

NASHVILLE HARDWOOD FLOORING CO.

Manufacturers Acorn Brand

Oak and Beech Flooring

NASHVILLE, TENN.

Beech Flooring for Cotton Mills Given Special Attention

PATENT GROOVER OR DADO HEAD.

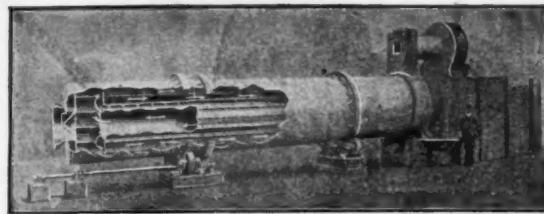


Can be used on any Circular
Saw Mandrel.

For cutting any width
groove from 1/8 inch
in 2 inches or over.
This groover consists
of two outside cutters
each of which is a
groover to itself,
and as many inside
cutters as required.
The inside cutters
are made 1/16, 1/8
and 1/4 inch
thick, so that
any width
groove measurable
in sixteenths may be cut.
The outside cutters
are made 1/4 inch
thick. It will cut
a perfect groove,
either with or across
the grain, and will
not leave a rough
edge, as is the case with ordinary groovers.

HUTHER BROS. SAW MFG. CO.
SAW MANUFACTURERS

1800 University Ave. ROCHESTER, N. Y.
California Saw Works, San Francisco, Cal.
Agents for Pacific Coast.



For Drying Ores, Concentrates
and Scores of Other
Minerals Use

RUGGLES-COLES "Double-Shell" Dryers

We offer six regular classes of Ruggles-Coles
Dryers, and for drying certain substances
special machines are built to order.

Let us send you our newest illustrated booklet,
"What We Dry."

Ruggles-Coles Engineering Co.

Chicago Office, McCormick Bldg.

50 Church St., New York

Atlanta, Ga. Hancock-Holmes
Foundry and Machine Works

37-52

C.O. BARTLETT AND SNOW CO.

MAKERS OF

CLEVELAND, O. U.S.A.

DRYERS

CATALOG N° 16

GRADERS

CATALOG N° 27

ELEVATORS AND CONVEYORS

Automatic
Improved
For All Materials.

DRYERS

Economical—Efficient
Great Capacity
American Process Co.
68 William St.
New York.

ELEVATING, CONVEYING, TRANSMISSION ROCK, ORE CRUSHING AND PULVERIZING

PLANTS IMPROVED, NEW PLANTS DESIGNED

We will contract for your plant complete and guarantee results. Will act as your
engineers only, or will supply any part of your equipment.

J. H. MacLAUCHLAN ENG. CO., 205 W. Lombard St., Baltimore, Md.

Elevating, Conveying and Power Transmitting Machinery

MILL SUPPLIES OF ALL KINDS

WRITE FOR CATALOGUE

REUTER-JONES MFG. CO.

1807 S. 3d St.

ST. LOUIS, MO.

DON'TS FOR BUYERS

Don't fail to buy from advertisers in the MANUFACTURERS RECORD as
they are the most representative firms seeking Southern business.

Don't forget to mention the MANUFACTURERS RECORD when writing to them.



PERFORATED METALS

WE make perforated sheet metals in steel, iron, bronze and other metals for screening coal, coke, ore, rock and for cottonseed oil mills and phosphate mines. Square, round and oblong holes. Special screens for present-day coal demands. Let us figure on your specifications.

HENDRICK MFG. CO.
Carbondale, Pa.

NEW YORK:
1017 Cortlandt Building

PERFORATED SCREENS

MADE OF ANY KIND OF METAL

For Mining, Milling and Centrifugals—for Screening Ores, Coal, Stone, etc.
Metals of all kinds punched in any size and shape in any thickness.
We have manufactured Perforated Metals exclusively for 43 years. Write for printed matter.

CHAS. MUNDT & SONS

53-57 Fairmount Ave. Jersey City, N. J.

Complete Plants for Washing and Preparing

HEMATITE ORES AND PHOSPHATE ROCK

WASHERS, Wood or Steel Logs. ORE JIGS for Hard Service. ELEVATORS, All Steel. CONVEYORS, All Steel. REVOLVING SCREENS of All Kinds.

CATALOGUE FOR THE ASKING.

McLANAHAN-STONE MACHINE CO.

HOLLIDAYSBURG, PA.

FERTILIZER MACHINERY

A SPECIALTY

WRITE FOR PRICES. LOCOMOTIVE REPAIRS.
WILMINGTON IRON WORKS, Wilmington, N. C.

PRATT

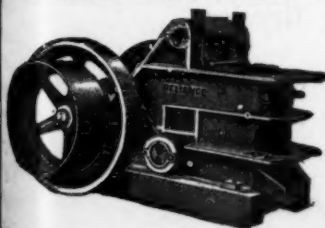
Imperial



Acid Appliances
Special Heavy Castings
Fertilizer Works Machinery
Heavy Bronze Castings
Sugar Machinery

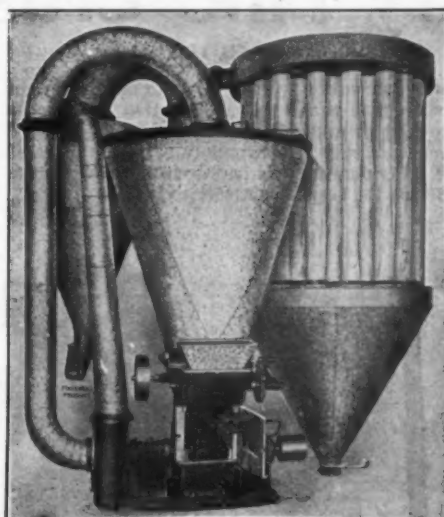
Pratt Engineering & Machine Company
ATLANTA, GA.

Reliance Crushers



Noted for Economy, Efficiency and Service.
UNIVERSAL ROAD MACHINERY CO.
KINGSTON, N. Y.

BOSTON ROCHESTER NEW YORK



Raymond No. 00 Pulverizer and Air Separator with Cyclone Tubular Dust Collector

Reduce Your Cost of Grinding Refractory Materials and

get a more workable product in the bargain

THE RAYMOND SYSTEM with Air Separation grinds any material finer than is possible by any other known mill or method and the product is always more uniform.

Its capacity per hour is far greater than others and the power required is far less than any now before the public.

The Raymond System employs the simplest mechanical equipment. The cost of upkeep is the very lowest.

In many cases where Raymond Mills have replaced antiquated methods, they have worked revolutions in the manufacturing process, reducing the cost amazingly by producing a more workable product. A modern method, exclusive with us, is employed in separating the material when ground by the

RAYMOND PULVERIZING-AIR SEPARATING SYSTEM

All separating is done by air suction—the lowest method in cost ever devised. No bolters, reels or screens are used, hence no expensive upkeep for them.

All the powder is kept within the system, allowing none to escape to be wasted, or to poison or choke the workmen. It leaves no tailings.

Send for our Book which explains in detail what our system is, and how and where it may be used.

Read this Book and you may find the way to divert some items from the expense account into the dividend account.

Raymond Brothers Impact Pulverizer Company

1502 Harrison St.

CHICAGO, ILL.

Designers of Special Machinery and Methods for Grinding, Pulverizing and Separating. Manufacturers of Automatic Pulverizers, Roller Mills, Vacuum Air and Screen Separators, Crushers, Special Exhaust Fans, Dust Collectors.

CUT OUT THIS REMINDER

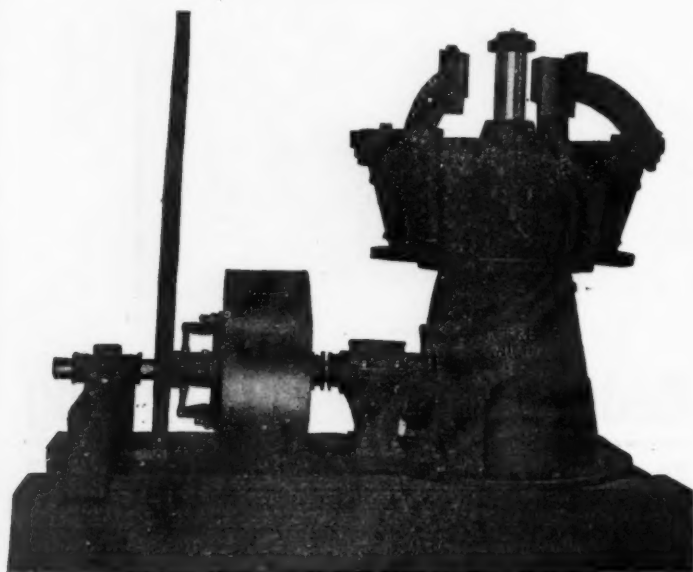
Raymond Bros. Impact Pulverizer Company
1502 Harrison St.
Chicago

Dear Sirs: Please send us the Book explaining your modern money-saving method of Pulverizing and Air Separation.

Rotary Fine Crusher

(HINGED TOP)

This well-known crusher was made to meet the want for a crusher that could be easily gotten into, so as to remove iron or other foreign material. The hinged top is so made as to fit any of our rotary fine crushers now in use. Considering the improvements, we believe we are offering the best fine crusher to be had.



WALKER & ELLIOTT, Wilmington, Del.

*Fertilizer Machinery Specialists.
Everything required in a Fertilizer Factory.*

PULVERIZING MACHINERY

of every description

THE J. R. ALSING ENG. CO.

Ask for Catalog "M"

90 West St., N. Y. C.

The Mecklenburg Iron Works

Will be glad to answer all correspondence from parties who need or expect to need

Machinery for Handling GOLD, IRON OR COTTON

as they have been manufacturing such machinery for thirty years, and can give entire satisfaction. Their address is

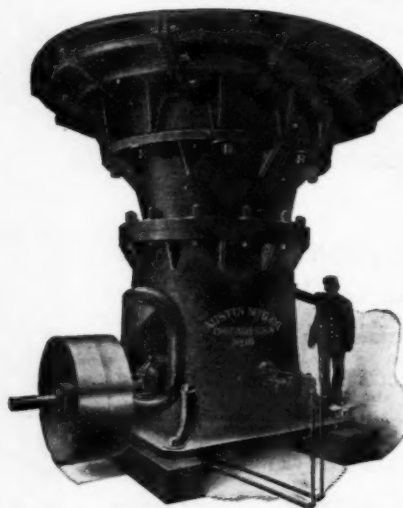
M. I. W.

Charlotte, N. C.

M. I. W.

"Consult a Specialist"

Our opinion is worth something to you in problems of



Austin Gyratory Crushers, 9 sizes, 50 to 5000 tons capacity per day.

**Rock
Crushing,
Earth
Handling
AND
Road
Making
Machinery**

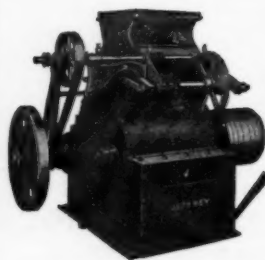
We specialize in the above lines. Our opinion and specifications are free to you. If you buy our machinery we will both be pleased.

Austin Manufacturing Co.

CHICAGO NEW YORK

CANADIAN AGENTS—MUSSENS, Ltd., MONTREAL

We Manufacture Wheel and Drag Scrapers, Road and Elevating Graders, Road Plows, Scarifiers, Road Rollers, Rock Crushers, Quarry Cars, Dump Wagons, Street Cleaning Machinery



The Jeffrey Swing Hammer Pulverizer

is the most serviceable and dependable machine made for reducing Limestone, Slate, Phosphate Rock, etc.

Has a larger capacity and yields a more uniformly fine product, consumes less horse power per ton of capacity, and costs less for up-keep than any other pulverizer on the market.

Crushing tests of material sent into us are made without charge. Write for Catalog 31-C.

JEFFREY MFG. CO.

COLUMBUS, O.

CLAY AND SHALE GRINDERS

WILLIAMS PATENT HAMMER TYPE

Shale Crushers. Shale and Clay Grinders
for Brick Yards.

Special Wet Clay Grinders, will grind any wet clay that will make brick.

Manufactured and Licensed Under 87 Separate and Distinct Patents.

WRITE FOR BULLETIN No. 22



THE NEW WILLIAMS

1700 Machines Now in Use.

The Williams Patent Crusher & Pulverizer Co.

Works { 2701 N. Broadway,
St. Louis, Mo.

San Francisco Office: 347 Monadnock Bldg.

Sales Dept.: Old Colony, Chicago

Cities, Towns and Railroads Inviting Factories.

Locate Your Factory in Atlanta

If you are considering establishing a manufacturing plant anywhere in the South, we can offer you one of the most attractive propositions to be found. We have control of several thousand feet frontage on Belt Railroad, which connects the main lines of the greatest shipping center of the South.

For Full Information, Address

Shelby Smith, 401-2 Empire Bldg., Atlanta, Ga.

WYTHEVILLE'S INDUSTRIAL ADVANTAGES

Raw Materials

Cheap Power

Good Labor

Surrounded by a country rich in mineral, timber and agricultural resources; with 30,000 H. P. available from hydro-electric development of Appalachian Power Company; abundance of good labor; high elevation, (2360 feet); pure mountain water; low tax rate; directly on main line of Norfolk and Western Railway, giving access to good markets in every direction and to seacoast for export.

Wytheville Offers Unusual Openings for Industries

For further information address

G. S. Sexton, Mayor

Wytheville, Va.

MANUFACTORIES INVITED

Cheap Electric Power and Labor

Bedford City, Va., offers every advantage to industrial plants generally.

- Has cheap electric power which is very necessary to profitable manufacturing; has good supply of labor and ample raw material of various kinds within easy reach; and is on railroad connecting with all parts of the country and seaports. Good schools, churches, healthful climate and other facilities and comforts which make it a fine place of residence.

Detailed information gladly given by the

BOARD OF TRADE

BEDFORD CITY, VIRGINIA

THE SOUTH'S "GARDEN SPOT" IS TRAVERSED BY THE ATLANTA, BIRMINGHAM & ATLANTIC RAILROAD

Lands are reasonable in price, very fertile and adaptable to the widest range of crops. Splendid climate and excellent church and school advantages. The territory is attracting general attention throughout the country.

Those desiring to locate will do well to communicate early. Inquiries are invited and literature treating fully with the population, soil conditions, etc., will be promptly mailed.

W. H. LEAHY

GENERAL PASSENGER AGENT

ATLANTA, GA.

The Thriving Towns of Georgia

Offer opportunities and untold advantages for every line of business. Situated in the heart of the great COTTON BELT, in a country that is growing by leaps and bounds, and knows no hard times, they offer splendid inducements to merchants, manufacturers, professional men and every man that is willing to work. Correspondence solicited.

Georgia Bureau of Industries
& Immigration

714 Century Bldg.

Atlanta, Ga.

THE West Point ROUTE

Atlanta & West Point R. R.

THE WESTERN
RAILWAY OF ALABAMA

Offers excellent locations for

Truck, Fruit, Stock

And General Farming

Available Factory Sites. Abundance of Raw Material and Good Transportation Facilities.

Write for information.

E. S. CENTER

General Agent

EAST POINT, GA.

Attractive Factory Sites

ON THE

ILLINOIS CENTRAL RAILROAD

For full particulars address the undersigned

Free books of information on farm lands issued by the
Illinois Central Railroad

ABOUT THE SOUTH

LOUISIANA RECLAIMED LANDS MAKE
FERTILE FARMS

THE YAZOO MISSISSIPPI VALLEY
LIVE STOCK INDUSTRY IN THE SOUTH
ALFALFA SUCCESSFULLY GROWN IN MISSISSIPPI
MADISON COUNTY, MISSISSIPPI
GRENADA COUNTY, MISSISSIPPI
TISHOMINGO COUNTY, MISSISSIPPI
TANGIPAHOA PARISH, LOUISIANA
WEST TENNESSEE

Everyone who would like a Southern home or investment should have a copy of one or all of these books. For free copies address

J. C. CLAIR

Industrial and Immigration Commissioner

ILLINOIS CENTRAL RAILROAD COMPANY

135 Park Row, CHICAGO, ILL.

Roanoke Rapids Power Company

ROANOKE RAPIDS, N. C.

83 miles from Norfolk, Virginia
105 miles from Richmond, Virginia
12 hours by rail from New York, N. Y.

W. M. HABLSTON, Pres.
Richmond, Va.

HENRY LEWIS MORRIS, Vice-Pres.
New York, N. Y.

J. T. CHASE, Mgr.
Roanoke Rapids

10,000 Developed Horse Power

RATES FOR HYDRO-ELECTRIC POWER
in 300 H. P. units and upwards:

Day Use,	\$22 per Horse Power per Annum
Night Use,	15 " " " " "
Day and Night Use,	35 " " " " "

U. S. Census, referring to the power, speaks of it as of great capacity.

Senator Dawes, in a speech delivered at Hoosac Valley Fair, refers to it as "Superior in every respect to that which furnishes employment to 26,000 people at Holyoke, 40,000 at Lawrence, and 60,000 at Lowell."

Excellent Shipping Facilities

Should Be A Powerful Inducement When Deciding Upon The Location For Your New Plant

There are many questions a manufacturer and jobber is called upon to answer when contemplating a change of location or the erection of a branch plant. Available raw material, condition of the labor market, proximity to trade centers, competition, climate, water, cost of power and a host of other like questions come up for serious consideration. But if the above questions are of importance, the one of SHIPPING FACILITIES is doubly so.

In this day and age, rapid transportation has, to a certain extent, annihilated distance. Where formerly it was highly necessary to have the factory located close to the consuming districts as well as in near proximity to the sources of raw material, this is not now quite so essential. In fact, it is often desirable, because of good shipping facilities, to have the factory located midway between these two points. When this is so, as in the case of the manufacturer who is after the foreign as well as the local trade, the question of shipping facilities becomes one of prime importance.

TEXAS CITY, TEXAS, is located on the MAINLAND of Galveston Bay, and affords a direct outlet to the sea for the tremendous traffic that originates in the middle western portion of the United States and Canada. It is the only practical deep-water harbor on the Mainland of Texas having a ship channel 27 feet deep. It has the most modern dock, warehouse and terminal system of any Southern port, and has established rail and water transportation lines that place it in direct communication with the sources of a variety of raw materials as well as with the principal trade centers of the world. Below are outlined its advantages in this respect.

LAND ROUTES

Texas City terminals are built along strictly modern lines, and are designed for the RAPID and ECONOMICAL HANDLING OF FREIGHT. To this end more than \$4,000,000 has been spent in the installation of modern fireproof warehouses, electrical freight-handling devices, electrical switching systems and other up-to-date terminal improvements, and in the purchase of a site for these facilities. Insurance rates, handling charges and miscellaneous expenses have been reduced to a minimum, which fact has resulted in a tremendous increase in the value of shipping via this port—28 per cent. during the last shipping season. A terminal belt line railway furnishes freight connections with all of the great railway systems reaching into this territory, among which are the following:

Galveston, Harrisburg & San Antonio; Missouri, Kansas & Texas; International & Great Northern—Gulf, Colorado & Santa Fe, and Trinity & Brazos Valley Railways.

WATER ROUTES

On the ocean side, Texas City has established steamship service between Texas City and New York; Texas City and Gulf Coast ports; Texas City and Tampico, Vera Cruz and Mexican Gulf Coast ports, and Texas City and Havre, Bremen and Liverpool. In addition, arrangements are now under way for establishing steamship service between Texas City and the principal ports of France, Italy and the Oriental countries. Thirty-six hundred feet of deep-water dock frontage represents the present berthing capacity of this modern port, and additions and extensions are being made as rapidly as conditions necessitate.

The above is a brief outline of shipping facilities at Texas City. This is one of the many inducements offered to manufacturers to locate here, and we believe you will agree that this is one of the very important things to be considered when determining upon a factory location.

**Our Industrial Department will be glad to co-operate with
interested parties, and will furnish detailed
information of any kind
upon request**

ADDRESS

Texas City Transportation Co., Texas City, Texas

**In Alabama
Forty-seven Miles
From Birmingham**

Excellent Location for GLASS PLANT

for the manufacture of all grades of high-class glass. Splendid deposits of silica, through tests of which have been made by experts and pronounced A-1.

Sites and material will be given free to responsible parties

For further information address

J. A. PRIDE

General Industrial Agent Seaboard Air Line Railway
NORFOLK, VIRGINIA

Ideal Industrial Investments in "A Land of Resources"

The territory traversed by the Tennessee Central Railroad, the direct connecting link between the Northwest and the Southeast, contains more wealth and diversity of Natural Resources than any other similar railroad mileage, and its development has just commenced.

EVERY VARIETY OF TIMBER

in the South grows along the Tennessee Central. It has received the highest awards from the Louisiana Purchase Exposition to the Appalachian. Therefore, unexcelled opportunities are offered Saw and Planing Mills, Furniture, Box, Handle, Spoke, Hub, Rim, Cedar Pencil, Shuttle, Veneering, Wood Pulp, Tannic Extract, Stave, Heading and every variety of Woodworking Factories.

ITS WEALTH OF MINERALS

Coal, Iron, Phosphate, Oil, Lithograph Stone, Marble, Cement Rock, Limestone, Sandstone, Slate, Clay, Kaolin, Fluorspar, Glass Sand, cannot fail to attract those interested in Mines, Quarries, Furnaces and Factories.

SOIL AND CLIMATE

The Soil produces profitably all the crops—Grains, Grasses, Cotton, Tobacco, Live Stock, Poultry, and Fruits of the South except the sub-tropical. The air and water are absolutely pure. No climatic sickness; no extremes of heat or cold, and where every day is work day. Operatives live cheaply and comfortably. These conditions make Ideal Industrial Locations in "A Land of Resources."

Let me tell you all about it. Address

RUTLEDGE SMITH, Industrial Agent
TENNESSEE CENTRAL RAILROAD
Cookeville, Tennessee

The Southeast the Coming Manufacturing Center

All the raw materials necessary for the successful operation of factories requiring coal, iron, lumber, clays, etc., also hydro-electric power at lowest cost, are obtainable at numerous points along the lines of the

If you desire to establish yourself in the midst of rapidly growing markets, with a minimum of competition and where climatic conditions are ideal, the Southeast offers opportunities unparalleled by any other section of the country.

Favorable Location for Manufacturing Plant

A county-seat town in northern Alabama having exceptionally fine railroad facilities desires to induce manufacturers of knit goods, hosiery or other like lines, utilizing female help, to locate in their city. Local capital would give aid to a favorable industry; adequate buildings are ready for immediate occupancy. Refer to file 34903-C for further particulars.

Opportunity for Sales- man with Capital

The manufacturers of a superior grade of crucible steel shovels desire to connect with a *live salesman* who can put some capital into the business. The business is already well established, but extra working capital is desired to increase the output. The goods are held in high esteem by dealers and users, and a complete statement of finances will be furnished to those interested. Refer to file 28165 for full particulars.

SOUTHERN RAILWAY

Mobile & Ohio R. R., Georgia Southern & Florida Railway
and Virginia & Southwestern Railway



AN UP-TO-DATE SOUTHERN COTTON MILL IN VIRGINIA

Full particulars regarding any of the above properties or information on desirable openings in the states of Virginia, N. Carolina, S. Carolina, Georgia, Florida, Alabama, Mississippi, Tennessee or Kentucky, may be obtained by referring to the file numbers and writing

M. V. RICHARDS, Land and Industrial Agent
Southern Railway, Room 52 WASHINGTON, D. C.

Opening for Expe- rienced Furniture Manufacturer

A North Carolina town situated on the Southern Railway where necessary grades of lumber are obtainable at manufacturers' prices desires an experienced manager with some capital, to establish a plant for the manufacturing of chairs, tables, etc. Buildings adaptable for such an industry are ready for occupancy. Local financial support would be given. Further information by referring to file 39332.

Opening for Wholesale Feed and Grocery House

A prosperous northern Tennessee town, situated at the junction of two railroads, in a rich, thickly populated, out-lying farming section offers an exceptional opening for establishing a *wholesale feed and grocery house*. Full particulars by referring to file 40855.

Coal of West Virginia vs. Coal of Europe

Great Britain, Germany, France, Austria and Belgium, with a combined population of nearly 190,000,000, have an aggregate coal land area of.....17,011 sq. miles

West Virginia alone has a coal land area of.....17,000 sq. miles

And West Virginia's coal is nearer to the surface and in wider veins, so that while in area it is practically equal to the entire coal area of all the European countries named, its quantity probably far exceeds their total coal supply.

Coal is the moving power of the industrial world.

Coal made possible the development of Great Britain's enormous wealth.

Coal gave to Great Britain for many years the supremacy in iron and steel, and made possible the development of its vast textile interests, until Great Britain now has nearly one-half of the cotton spindles of the world.

Coal gave to Great Britain its power when the steamship displaced the sailing vessel to dominate the world's commerce through its enormous coal-driven merchant marine.

Primarily, the foundation on which the wealth and commerce of Great Britain is based is its coal, for without its coal it could never have achieved its industrial and its world-wide shipping conquests.

Following Great Britain for many years, and now surpassing Great Britain in the magnitude of its iron and steel interests, came Germany.

The marvelous expansion of Germany's foreign commerce, its wonderful advance in iron and steel, until it has become the second iron and steel producing country in the world, were based on coal.

Without coal Germany could not have made these achievements.

What is true in this respect of Great Britain and Germany is true of all Europe and of all the world.

Power, and primarily that means coal, and its utilization must be the measure of a Nation's material development.

In the light of these facts study the boundless possibilities of West Virginia's coal.

The wealth and industrial power, the enormous railroad traffic, the great cities and the vast manufacturing enterprises of Great Britain, Germany, France, Belgium and Austria, created by the power of coal, give some slight hint of what nature had in store for West Virginia when it piled its billions of tons of coal mountain high and cut its mountains by rivers, making possible the construction of railroads that this traffic might flow along the lines of least resistance.

When one contemplates what coal has meant in world development, he gets a faint realization of what coal is to mean in the creation of wealth and the building of cities, the establishment of industrial interests in such a center of coal and a center so wonderfully blessed with resources of timber, of iron ore, of clays, of cement rock, and other raw materials for the widest diversity of industrial activities as West Virginia.

When to these things are added the almost limitless supply of natural gas available for manufacturing purposes, the millions of barrels of oil poured from its wells, its bracing climate and its remarkable geographical location, with the teeming West on one side and the Atlantic Seaboard on the other, and the world open for the expansion of its trade, one gets a fair idea of what West Virginia is, and is to be, as he studies these facts.

Farseeing investors and manufacturers look to such a country as the best in which to operate. Write our Industrial Department for further facts.

Baltimore & Ohio Railroad

W. W. Wood, Industrial Agent

Baltimore, Md.

Clinchfield's

Diversified Mineral Resources

A Basis for Many Profitable Industries

Throughout that section of Southwestern Virginia, Eastern Tennessee and Western North Carolina traversed by the Clinchfield there is a vast wealth of diversified mineral resources that would prove the basis for the operation of many profitable industries.

Some of these resources are being developed, but none of them in keeping with their quality and quantity.

Among the many important minerals of which there is an unlimited supply are

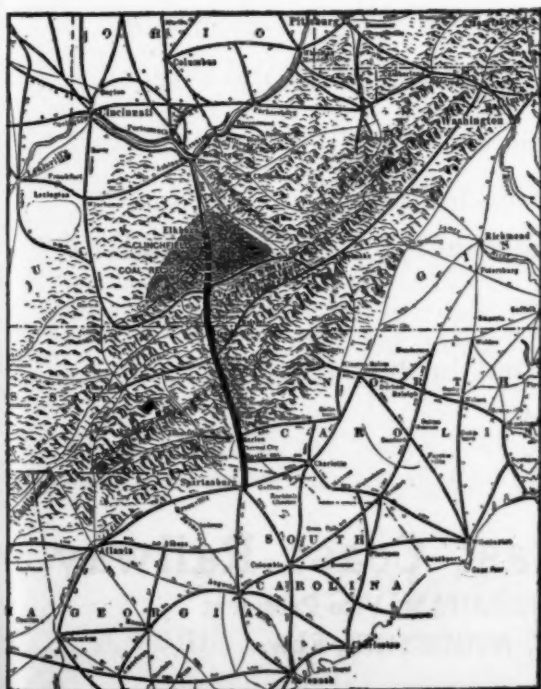
Kaolin	Mica	Feldspar	Marble	Clay
Quartz	Talc	Limestone	Barytes	Shales

Ready markets are accessible both for raw materials and the many products that can be made from them.

Here also can be found plenty of good white labor, an abundance of fine water, cheap power and a delightful invigorating climate.

These mineral-bearing lands can be purchased *now* at reasonable prices; consequently, it behooves the manufacturer or investor to investigate the situation immediately.

Careful investigations, extensive prospecting and detailed reports have been made upon the Clinchfield mineral resources by recognized authorities.



Full information as well as every co-operation will be given responsible parties desiring to study the opportunities available.

Carolina, Clinchfield & Ohio Rwy.

"THE ROAD OF OPPORTUNITY"

J. J. Campion,
V.-P. and Traffic Manager

R. F. Brewer,
Industrial Agent

Johnson City, Tenn.

Bring Your Veneer Package and Barrel Business to Florida

*Millions of Boxes, Crates and Barrels Used Annually
for Shipping the State's Output of Fruit and Truck*

Florida ships annually to all parts of the country an enormous amount of fruits and vegetables.

Thousands of tons of fish are also sent from the sea coast towns every year.

And these industries may be said to be still in their infancy, because new settlers are continually coming to Florida to take up the unusual and inviting opportunities which the climate and soil of that State offer.

There were shipped during the past year from points on this railroad a vast number of crates and boxes of fruits and vegetables, and many tons of fish in barrels.

This indicates the vast amount of veneer packing crates, boxes and barrels that must be required to handle the products raised in Florida.

This State offers, therefore, unusual opportunities for the establishment of plants to make these products.

The forests of Florida yield raw material ample in volume, low in cost, and especially adapted for making both veneer packages and barrel staves.

Considering the present demand, coupled with the fact that truck raising and fruit growing are continually increasing, not only is there an already established market for packages and barrels, but also one that is getting larger and larger every year.

No State in the country presents more attractive locations for such plants, because here are combined in the same place both the raw material for manufacture and the market for the finished product.

This suggestion is worthy of careful investigation, and further details will be fully furnished to those desiring to study the situation.

Florida East Coast Railway

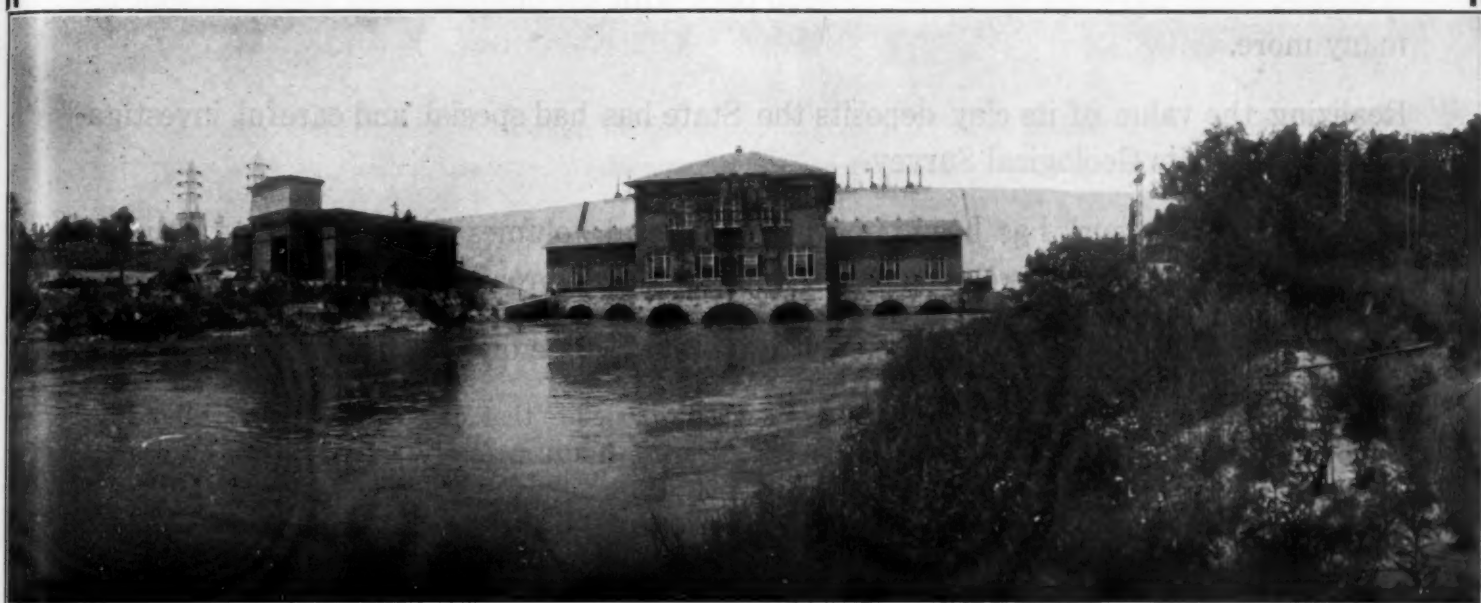
J. E. INGRAHAM, Vice-President
ST. AUGUSTINE, FLA.

Solid Foundation of Great Falls, S. C.

Unequalled Power Opportunity for Manufacturers

At Great Falls, South Carolina, in the Valley of the Catawba, the rushing waters of a big river have been harnessed to meet the demands of the steady industrial expansion sweeping over the South.

The Southern Power Company, with a full knowledge of its value, brought the Catawba under control by the construction of concrete dams, and linked the harnessed power to its mighty chain of hydro-electric plants, which have proven such a potent factor in the industrial development of the Piedmont section of North and South Carolina.



Great Falls combines all the needed advantages for profitable manufacture found in other thriving communities in this favored region—

Abundance of Cheap Power

Cheap Sites for Factories

Proximity to Raw Materials

Good Transportation Facilities

On one hand the cotton field of the lowlands, on the other the mineral and timber resources of the highlands supply the basis for manufacturing pursuits of a wide range.

While immediately at Great Falls are deposits of granite and clays, the latter especially suited for making fireproof tile, drain tile, sewer pipe and other readily marketed products.

The Southern Power Company is prepared to furnish power upon reasonable terms and to any extent required. Their transmission lines traverse an area 335 x 125 miles. They already supply the power for 176 cotton mills, besides street railways, lighting plants and most of the manufacturing industries in the various cities in this district. Their facilities are unequalled and completely solve the power problem.

Great Falls is on the Seaboard Air Line, which traverses six Southern States and has connections leading to the best markets in the land. Its Industrial Department will gladly furnish full facts.

Seaboard Air Line Railway

J. A. PRIDE, General Industrial Agent

NORFOLK, VA.

Mississippi's Fine Clays for Brick, Pottery and Tile Industries

Mississippi has extensive deposits of different varieties of high-grade clays that are especially suited for the manufacture of brick, pottery and tile.

None of these deposits, however, have been developed in keeping with their importance, and while some plants have been established in the State to manufacture various clay products, these have not been able to keep pace with the demand, and there is room for many more.

Realizing the value of its clay deposits the State has had special and careful investigations made by its Geological Survey.

The result of this work has been published in several volumes with a hope that a better knowledge of Mississippi's clay deposits would lead to a broader development of them.

In speaking of the possibilities of the pottery industry one of these reports states:

"The ceramic history of Mississippi has not been developed to that extent which is warranted by the quality and quantity of its resources. During the past few years there has been a decided improvement in our methods of brick manufacture with a corresponding increase in the quality of the ware. The manufacture of drain tile has been introduced, and the fact that we have clays suitable for its manufacture has been thoroughly demonstrated. In the manufacture of pottery, however, there has been little advance."

As the entire State is undergoing a rapid industrial and agricultural development and many new home-seekers are continually locating here, a great amount of new building and construction work of all kinds is continually being undertaken, and large quantities of brick and drain tile are being used.

Most of these materials are shipped from the outside, when all and more than is needed could be made within the State.

Mississippi offers not only a splendid and growing home market, but also an abundance of the raw materials for the establishment of a number of modern well-conducted clay working plants.

Considering the need for clay working plants in this State, these opportunities are worthy of careful investigation.

*Further facts
regarding
Mississippi
Clay Deposits
will be gladly
furnished.*

Illinois Central Railroad
Chicago, Ill.

*J. C. Clair,
Industrial
and
Immigration
Commissioner,
Chicago, Ill.*

The Heart of the South's Activities and Opportunities

The Central of Georgia Railway covers the heart of the most active section of the South. Many of the South's busiest and most prosperous cities are on this railroad.

ATLANTA
COLUMBUS

BIRMINGHAM
MONTGOMERY

CHATTANOOGA
MACON

SAVANNAH
ROME

The Central of Georgia extends through the greater part of Georgia which possesses world-famous peach, melon and fruit growing lands, rich farming and stock raising lands and mineral resources in abundance and variety.

It also taps that rich manufacturing community in and around Chattanooga, the home of diversified manufacture.

It covers the most prosperous section of Alabama. The great iron, steel and coal centers of that State, together with its many well known deposits of raw materials of different kinds offer limitless possibilities for profitable development.

Throughout this territory are opportunities to engage in manufacture in almost every line with every prospect of success.

Raw materials of the mine, the forest and the field everywhere abound.

Power can be cheaply obtained. An abundance of coal is mined in this section, while many of its rivers have been harnessed to develop hydro-electric power, thus completely solving the power problem.

Efficient labor is plentiful, and the climate and living conditions are unusually good.

With these full requirements for manufacture this territory enjoys facilities for transportation that cannot be excelled by any other section in the South.

The Central of Georgia not only offers through its connections the quickest and best routes to the North and West, but through its connections at Savannah water routes along the entire coast and to the leading markets of the world are available.

No one can study and analyze the situation as generally outlined above without recognizing that the marvelous development of this territory has been due to its complete possession of every advantage necessary to business success.

Every co-operation and assistance will be extended by this railroad to those desiring to investigate the adaptability of this territory to their particular undertaking.

Central of Georgia Railway

J. M. MALLORY, Industrial Agent

J. F. JACKSON, Agricultural Agent

Savannah, Georgia

CLASSIFIED INDEX OF ARTICLES ADVERTISED

- Abrasive Materials.**
Abrasive Material Co., Philadelphia, Pa.
Carborundum Co., Niagara Falls, N. Y.
Hall Grindstone Co., Constitution, Ohio.
Norton Co., Worcester, Mass.
Vitrified Wheel Co., Westfield, Mass.
- Accountants.**
Baltimore Audit Co., Baltimore, Md.
Interstate Audit Co., Washington, D. C.
Neville, Chas., Savannah, Ga.
- Adding Machines.**
Burroughs Adding Machine Co., Detroit, Mich.
- Agents. (Manufacturers.)**
Allen, Herbert F. L., Washington, D. C.
- Agricultural Implements.**
Myers & Bro., F. E., Ashland, O.
- Air Compressors. (Stationary and Portable.)**
Allen, Herbert F. L., Washington, D. C.
American Air Compressor Wks., New York, N. Y.
American Compressor & Pump Co., Baltimore, Md.
Chicago Pneumatic Tool Co., Chicago, Ill.
Gardner Governor Co., Quincy, Ill.
General Electric Co., Schenectady, N. Y.
Ingersoll-Rand Co., New York, N. Y.
Laidlaw-Dunn-Gordon Co., Cincinnati, Ohio.
Nagle Corlies Engine Wks., Erie, Pa.
Quincy Engine Co., Quincy, Pa.
Union Steam Pump Co., Battle Creek, Mich.
- Air Motors.**
Ingersoll-Rand Co., New York, N. Y.
- Aluminum Products. (Bars, Sheets, Tubes.)**
Aluminum Company of America, Pittsburgh, Pa.
- Aluminum Wheels.**
Norton Company, Worcester, Mass.
- Annealing Boxes.**
Wilfong Iron Works Co., Millard F., Phila., Pa.
- Anti-Friction Metals.**
Bulley-Lebby Co., Charleston, S. C.
Gilbert & Sons Brass Fd. Co., A., St. Louis, Mo.
Phosphor-Bronze Smelting Co., Phila., Pa.
Virginia Railway Supply Co., Norfolk, Va.
- Anti-Rail Creepers.**
Q. & C. Co., New York, N. Y.
- Architects.**
Cain, Shepherd & Peale, Richmond, Va.
Lockwood, Greene & Co., Boston, Mass.
Milburn, Helster & Co., Washington, D. C.
Nichols, Charles H., New York, N. Y.
Fettitt, Jr., Chas. Godfrey, Danville, Va.
Birline, J. E., Greenville, S. C.
Sorey, Norman W., Norfolk, Va.
- Architects' Supplies.**
Starrett, L. S., Athol, Mass.
Weber & Co., F., Philadelphia, Pa.
- Architectural Iron and Sheet Metal Work.**
Bolles Iron & Wire Works, J. E., Detroit, Mich.
Chesapeake Iron Works, Baltimore, Md.
Schreiber & Sons Co., The L., Cincinnati, O.
Sneed Architectural Iron Works, Louisville, Ky.
- Art Glass.**
Biswanger & Co., Memphis, Tenn.
- Art Glass and Prisms. (Set in Zinc and Copper.)**
Spleen Art Glass Co., G. A., St. Louis, Mo.
- Asbestos.**
Johns-Manville Co., H. W., New York, N. Y.
Southern Pipe Covering Co., Inc., Richmond, Va.
- Asphalt.**
Armstrong Mfg. Co., Richmond, Va.
Barber Asphalt Paving Co., Philadelphia, Pa.
Gulf Refining Co., Pittsburgh, Pa.
Texas Co., The, New York, N. Y.
- Asphalt Melters.**
Steubner Iron Wks., G. L., Long Island City, N. Y.
- Automobiles. (Motor Trucks.)**
International Motor Co., New York, N. Y.
Schmidt Motor Car Co., Cincinnati, Ohio.
- Axles. [See Car Wheels, Axles and Trucks.]**
- Babbitt Metal. [See Anti-Friction Metal.]**
- Badges. (Hat and Breast, Electric and Steam Road, Police and Fire Dept.)**
American Railway Supply Co., New York, N. Y.
- Bakers' Machinery.**
Lynn Superior Co., The, Cincinnati, O.
- Bankers and Brokers.**
Baltimore Trust Co., Baltimore, Md.
Barr, J. H. C., Philadelphia, Pa.
Delaware Trust Co., Wilmington, Del.
Electric Bond & Share Co., New York, N. Y.
Glenn, W. S., Spartanburg, S. C.
Halsey & Co., N. W., New York, N. Y.
Lisman & Co., F. J., New York, N. Y.
Mercantile Trust & Deposit Co., Baltimore, Md.
New First National Bank, Columbus, O.
Nuven & Co., John, Chicago, Ill.
Peabody, Houghteling & Co., Chicago, Ill.
Sieber & Co., H. F., Philadelphia, Pa.
Skinner, Clifford R., Philadelphia, Pa.
Southern States Development Co., New York, N. Y.
Trufant, S. A., New Orleans, La.
Wright, H. R., Philadelphia, Pa.
- Banks.**
Fifth-Third National Bank, Cincinnati, Ohio.
First National Bank, Baltimore, Md.
First Nat'l Bank of Key West, Key West, Fla.
Merchants National Bank, Baltimore, Md.
New First National Bank, Columbus, O.
National Exchange Bank, Baltimore, Md.
- Bank and Office Railings and Grilles. (Iron.)**
Bolles Iron & Wire Works, J. E., Detroit, Mich.
Chattanooga Iron & Wire Wks., Chattanooga, Tenn.
Chesapeake Iron Works, Baltimore, Md.
Cincinnati Mfg. Co., Cincinnati, O.
Dow Wire and Iron Works, Louisville, Ky.
Dufur & Co., Baltimore, Md.
Dufur, Baggett & Co., Baltimore, Md.
Meyers Mfg. Co., F. J., Hamilton, O.
Ohio Elevator & Machine Co., The, Columbus, O.
- Bank Fixtures.**
Ruse & Thompson, Baltimore, Md.
- Bar Iron. (Refined and Galvanized.)**
Carnegie Steel Co., Pittsburgh, Pa.
- Bars, Wire, Wire Fabric, etc. (For Reinforced Concrete.)**
American Steel & Wire Co., Chicago, Ill.
Cincinnati Iron & Steel Co., Cincinnati, O.
Concrete-Steel Co., The, New York, N. Y.
Franklin Steel Co., Franklin, Pa.
Hoffman & Co., R. C., Baltimore, Md.
Jones & Laughlin Steel Co., Pittsburgh, Pa.
- Bearings. (Ball.)**
Standard Roller Bearing Co., Philadelphia, Pa.
- Bearings. (Brass Journal.)**
Gilbert & Sons Brass Fd. Co., A., St. Louis, Mo.
- Bearings. (Locomotive and Car.)**
Keystone Bronze Co., Pittsburgh, Pa.
- Bearings. (Oilless.)**
Metalline Co., Long Island City, N. Y.
- Bearings. (Roller.)**
Roversford Fd. & Mch. Co., Roversford, Pa.
Standard Roller Bearing Co., Philadelphia, Pa.
- Bells and Gongs.**
National Tube Co., Pittsburgh, Pa.
Western Electric Co., New York, N. Y.
- Belting. (Leather, Canvas, Rubber.)**
American Supply Co., Providence, R. I.
Bulley-Lebby Co., Charleston, S. C.
Baltimore Belting Co., Baltimore, Md.
Cameron & Barkley Co., Charleston, S. C.
Chesapeake Belting Co., Baltimore, Md.
Diamond Rubber Co., Akron, O.
Dunk Oak Belting Co., Inc., Baltimore, Md.
Gandy Belting Co., Baltimore, Md.
Ladew, Estate Edward R., Glen Cove, N. Y.
N. J. Car Spring & Rubber Co., Jersey City, N. J.
Norwich Belting Co., Norwich, Conn.
Williams & Sons, I. B., Dover, N. H.
- Belting. (Chain.)**
Bartlett & Snow Co., C. O., Cleveland, O.
Caldwell & Sons Co., H. W., Chicago, Ill.
Jeffrey Mfg. Co., Columbus, O.
Link-Belt Co., Nicetown (Philadelphia), Pa.
Morse Chain Co., Ithaca, N. Y.
- Belt Conveyors.**
Jeffrey Mfg. Co., Columbus, O.
Robins Conveying Belt Co., New York, N. Y.
Taplin-Rice-Clerkin Co., Akron, O.
- Belt Dressing.**
Diamond Rubber Co., Akron, O.
Gandy Belting Co., Baltimore, Md.
Ladew, Estate Edward R., Glen Cove, N. Y.
- Belt Fasteners.**
Crescent Belt Fastener Co., New York, N. Y.
- Belt Lacing and Supplies. [See Belting, Leather, Canvas, Rubber.]**
- Bicarbonate Soda. (Sap Stain Lumber Dip.)**
Church & Dwight Co., New York, N. Y.
- Blackboards. (Slate.)**
East Bangor Con. Slate Co., The, East Bangor, Pa.
Hower, J. K., Slattington, Pa.
Johnson, E. J., New York, N. Y.
- Blocks. (Paving Grooved.)**
American Creosote Works, New Orleans, La.
- Block Tackle. (For Wire or Manila Rope.)**
Patterson Co., W. W., Pittsburgh, Pa.
- Blowers and Exhaust Fans.**
American Blower Co., Detroit, Mich.
Buffalo Forge Co., Buffalo, N. Y.
De Laval Steam Turbine Co., Trenton, N. J.
General Electric Co., Schenectady, N. Y.
Green Fuel Economizer Co., Mattewan, N. Y.
Raymond Bros. Impact Pulv. Co., Chicago, Ill.
South Atlantic Blow Pipe & Sheet Metal Co., Atlanta, Ga.
Sturtevant Co., B. F., Hyde Park, Mass.
- Blueprints.**
Dixie Blueprint Co., Atlanta, Ga.
- Bollers.**
Abendroth & Root Mfg. Co., Newburgh, N. Y.
Babcock & Wilcox Co., New York, N. Y.
Cameron & Barkley Co., Charleston, S. C.
Casey-Hedges Co., Chattanooga, Tenn.
Chattanooga Boiler & Tank Co., Chattanooga, Tenn.
Chicago House Wrecking Co., Chicago, Ill.
Cole Mfg. Co., R. D., Newman, Ga.
Cooper Co., C. & G., Mt. Vernon, O.
Gem City Boiler Co., Dayton, O.
Gibbes Bridge Co., Cincinnati, O.
Hartley Boiler Works, Montgomery, Ala.
Keeler Co., E., Williamsport, Pa.
Lookout Boiler & Mfg. Co., Chattanooga, Tenn.
Lombard Iron Works, Augusta, Ga.
Mecklenburg Iron Works, Charlotte, N. C.
Murray Iron Works Co., Burlington, Ia.
Oil City Boiler Co., Oil City, Pa.
Petroleum Iron Works, Sharon, Pa.
Phoenix Iron Works Co., Meadville, Pa.
Price Machinery Co., S. M., Norfolk, Va.
Ruemml-Dawley Mfg. Co., St. Louis, Mo.
Schofield & Sons Co., J. S., Macon, Ga.
Smith-Courtney Co., Richmond, Va.
Southern Engine & Boiler Works, Jackson, Tenn.
Union Iron Works Co., Selma, Ala.
Valk & Murdoch Iron Works, Charleston, S. C.
Vogt Machine Co., Henry, Louisville, Ky.
Walsh & Weidner Boiler Co., Chattanooga, Tenn.
- Boiler Tubes. [See Tubes, Boiler.]**
- Bolts, Nuts, Rivets, Studs and Washers.**
Garland Nut & Rivet Co., Pittsburgh, Pa.
Milton Mfg. Co., Milton, Pa.
Oliver Iron & Steel Co., Pittsburgh, Pa.
Republic Iron & Steel Co., Youngstown, O.
- Bonds. (Surety, etc.)**
Fidelity & Deposit Co., Baltimore, Md.
- Boring. (Cylinder.)**
Richmond Machine Wks., Inc., Richmond, Va.
- Bottling Outfits.**
Vilter Mfg. Co., Milwaukee, Wis.
- Box Shooks.**
Naylor & Co., S. E., Gulfport, Miss.
- Brass Goods.**
Bulley-Lebby Co., Charleston, S. C.
Buckeye Iron & Brass Works, Dayton, O.
Kennedy Valve Mfg. Co., Elmira, N. Y.
Newman Mfg. Co., Cincinnati, Ohio.
Powell Co., Wm., Cincinnati, Ohio.
Pratt & Cady Co., Hartford, Conn.
- Brass Railing and Grilles.**
Newman Mfg. Co., Cincinnati, Ohio.
- Brazings. (Cast Iron.)**
Richmond Machine Works, Inc., Richmond, Va.
- Brewers' Machinery.**
Vilter Mfg. Co., Milwaukee, Wis.
- Brick. (Building.)**
Am. Enamelled Brick & Tile Co., New York, N. Y.
Brookhaven Pressed Brick & Mfg. Co., Brookhaven, Mass.
Fluke & Co., Inc., New York, N. Y.
Hood Brick Co., B. Midlin, Atlanta, Ga.
Hydraulic Press Brick Co., St. Louis, Mo.
Kittanning Clay Products Co., Bradford, Pa.
Oconee Brick & Tile Co., Milledgeville, Ga.
Pittsburgh-Buffalo Co., Pittsburgh, Pa.
Sibley-Menge Brick & Coal Co., Birmingham, Ala.
Scott Brick Co., Alex. A., Knoxville, Tenn.
- Brick. (Blast Furnace, Coke Oven.)**
Hood Brick Co., B. Midlin, Atlanta, Ga.
- Brick. (Enamelled.)**
Amer. Enam. Brick & Tile Co., New York, N. Y.
- Brick. (Fire Clay.)**
Brookhaven Pressed Brick & Mfg. Co., Brookhaven, Mass.
Fluke & Co., Inc., New York, N. Y.
Killian Fire Brick Works, Killian, S. G.
Louisville Fire Brick Works, Highland Park, Ky.
Pomona Terra-Cotta Co., Pomona, N. C.
Stevens' Sons Co., H., Macon, Ga.
Taylor Sons Co., Chas., Cincinnati, O.
Union Mining Co., Mt. Savage, Md.
West Virginia Fire Clay Mfg. Co., Pittsburgh, Pa.
- Brick. (Paving.)**
Carlyle Paving Brick Co., Portsmouth, O.
Copeland-Ingles Shale Brick Co., Birmingham, Ala.
West Virginia Fire Clay Mfg. Co., Pittsburgh, Pa.
- Brick and Clayworking Machinery and Supplies.**
Carnell, George, Philadelphia, Pa.
Fennel's Brick Machinery Co., St. Louis, Mo.
Freese & Co., E. M., Gallon, O.
Scott-Madden Iron Works, Keokuk, Ia.
Steele & Sons, J. C., Stateville, N. C.
Taplin-Rice-Clerkin Co., Akron, O.
- Brick Fireplaces. [See Fireplaces, Artistic Brick.]**
- Brickwork. (Artistic.)**
Fluke & Co., Inc., New York, N. Y.
- Bridges. (Concrete.)**
Roanoke Bridge Co., Inc., Roanoke, Va.
- Bridges. (Rolling Lift.)**
Schermer Rolling Lift Bridge Co., Chicago, Ill.
- Bridges.**
American Bridge Co. of New York, New York.
Belmont Iron Works, Philadelphia, Pa.
Champion Bridge Co., Wilmington, Ohio.
Des Moines Bridge & Iron Co., Pittsburgh, Pa.
Farris Bridge Co., Pittsburgh, Pa.
Memphis Bridge Co., Memphis, Tenn.
Roanoke Bridge Co., Inc., Roanoke, Va.
Schermer Rolling Lift Bridge Co., Chicago, Ill.
Vincennes Bridge & Iron Co., Vincennes, Ind.
Virginia Bridge & Iron Co., Roanoke, Va.
York Bridge Co., York, Pa.
- Bridge and Structural Iron Paints.**
Chattanooga Paint Co., Chattanooga, Tenn.
Dixon Crucible Co., Joseph, Jersey City, N. J.
- Brimstone.**
Union Sulphur Co., New York, N. Y.
- Buckets. (Excavators.)**
Allen American Manganese Steel Co., Edgar, Chicago, Ill.
Hayward Co., New York, N. Y.
Monaghan Mch. Co., Chicago, Ill.
Steubner Iron Works, G. L., Long Island City, New York, N. Y.
Williams Co., The G. H., Cleveland, O.
- Buckets. (Ore, etc.)**
Brown Hoisting Mch. Co., Cleveland, O.
Caldwell & Son Co., H. W., Chicago, Ill.
Hayward Co., New York, N. Y.
Link-Belt Co., Nicetown (Philadelphia), Pa.
Smith Co., T. L., Atlanta, Ga.
Williams Co., The G. H., Cleveland, O.
- Buhr Stones.**
Starr Co., B. F., Baltimore, Md.
- Builders and Contractors.**
Consolidated Engineering Co., Baltimore, Md.
Falls City Construction Co., Louisville, Ky.
Gibbes Bridge Co., Cincinnati, Pa.
Ferry Concrete Construction Co., Cincinnati, O.
Seiden-Breck Construction Co., St. Louis, Mo.
White & Co., J. G., New York, N. Y.
- Buildings. (Financed and Erected.)**
Falls City Construction Co., Louisville, Ky.
Gulf Coast Construction Co., Houston, Tex.
- Building Supplies.**
Armstrong Mfg. Co., Richmond, Va.
Chicago House Wrecking Co., Chicago, Ill.
Norfolk Building Supplies Corp., Norfolk, Va.
Southern Building Material Co., Norfolk, Va.
Streeter Clip & Specialty Co., Inc., Chicago, Ill.
- Burners. (Oil.) [See Fuel Oil Equipments.]**
- Bushings. (Oilless, for Loose Pulleys.)**
Metalline Co., Long Island City, N. Y.
- Cables.**
American Steel & Wire Co., Chicago, Ill.
Broderick & Bascom Rope Co., St. Louis, Mo.
Koebeling's Sons Co., John A., Trenton, N. J.
Williamsport Wire Rope Co., Williamsport, Pa.
- Cableways. (Overhead Suspension.)**
Broderick & Bascom Rope Co., St. Louis, Mo.
Flory Mfg. Co., S. Bangor, Pa.
International Cable Railway Co., Baltimore, Md.
Lidgerwood Mfg. Co., New York, N. Y.
Mead-Morrison Mfg. Co., Cambridge, Mass.
Koebeling's Sons Co., John A., Trenton, N. J.
- Can and Box Making Machinery. (Tin.)**
Bliss Co., E. W., Brooklyn, N. Y.
- Cans.**
New Orleans Rfg. & Metal Wks., New Orleans, La.
Southern Can Co., Baltimore, Md.
- Canning Machinery and Supplies.**
Robins & Co., A. K., Baltimore, Md.
Sprague Canning Machinery Co., Chicago, Ill.
- Caps. (Roofing.)**
Robertson Steel & Iron Co., W. F., Cincinnati, O.
- Carborundum Paper and Cloth.**
Carborundum Co., Niagara Falls, N. Y.
- Card Clothing.**
American Supply Co., Providence, R. I.
- Cars. (Dump, Industrial, Logging and Mine.)**
Austin Mfg. Co., Chicago, Ill.
Baldwin Equipment & Supply Co., Chicago, Ill.
Chase Fd. & Mfg. Co., Columbus, Ohio.
Georgia Car & Locomotive Co., Atlanta, Ga.
Hunt Co., C. W., West New Brighton, N. Y.
Males Co., Cincinnati, O.
Oliver Mfg. Co., Wm. J., Knoxville, Tenn.
Raleigh Iron Works Co., Raleigh, N. C.
Smith Co., T. L., Atlanta, Ga.
Steubner Iron Wks., G. L., Long Island City, N. Y.
Union Iron Works, Selma, Ala.
Western Wheeled Scraper Co., Aurora, Ill.
- Cars. (Passenger and Freight.) [See Railroad Equipment and Supplies.]**
- Car Couplers and Knuckles.**
Safety Car H't'g & L'ght'g Co., New York, N. Y.
- Car Lighting and Heating.**
Safety Car H't'g & L'ght'g Co., New York, N. Y.
- Car Wheels, Axles and Trucks.**
Carnegie Steel Co., Pittsburgh, Pa.
Oliver Mfg. Co., Wm. J., Knoxville, Tenn.
Union Iron Works, Selma, Ala.
- Castings. (Aluminum.)**
Aluminum Company of America, Pittsburgh, Pa.
King Mfg. Co., Birmingham, Ala.
- Castings. (Brass and Bronze.)**
Gilbert & Sons Brass Fd. Co., A., St. Louis, Mo.
Keystone Bronze Co., Pittsburgh, Pa.
King Mfg. Co., Birmingham, Ala.
McKenna Bros. Brass Co., Pittsburgh, Pa.
Phosphor-Bronze Smelting Co., Phila., Pa.
Richmond Machine Works, Inc., Richmond, Va.
Stratton & Bragg Co., Petersburg, Va.
Triumph Electric Co., Cincinnati, O.
- Castings. (Iron, Gray, etc.)**
Caroline Foundry Co., Baltimore, Md.
Columbian Iron Works, Chattanooga, Tenn.
Georgia Car & Locomotive Co., Atlanta, Ga.
Glamorgan Pipe & Foundry Co., Lynchburg, Va.
McWane Pipe Works, Lynchburg, Va.
Pooles Engineering & Machine Co., Baltimore, Md.
Roanoke Iron Works, Inc., Roanoke, Va.
Robins Conveying Belt Co., New York, N. Y.
Stratton & Bragg Co., Petersburg, Va.
Tuscaloosa Iron Works, Tuscaloosa, Ala.
U. S. Cast Iron Pipe & Fd. Co., New York, N. Y.
Valk & Murdoch Iron Works, Charleston, S. C.
Westbrook Elevator Co., Danville, Va.
- Castings. (Malleable Iron and Steel.)**
Acme Steel & Malleable Iron Wks., Buffalo, N. Y.
Globe Malleable Iron & Steel Co., Syracuse, N. Y.
Missouri Malleable Iron Co., East St. Louis, Ill.
- Castings. (Steel.)**
Acme Steel & Malleable Iron Wks., Buffalo, N. Y.
Allen American Manganese Steel Co., Edgar, Chicago, Ill.
Crucible Steel Castings Co., Lansdowne, Pa.
Hoffman & Co., R. C., Baltimore, Md.
Reliance Steel Casting Co., Pittsburgh, Pa.
- Ceilings. (Metal.)**
Chattanooga Rfg. & Fd. Co., Chattanooga, Tenn.
Edwards Manufacturing Co., Cincinnati, O.
Hurry Steel Co., O. K., St. Louis, Mo.
Keighley Metal Cld. & Mfg. Co., S. Pittsburgh, Pa.
Milwaukee Corrugating Co., Milwaukee, Wis.
- Cement.**
Alpha Portland Cement Co., Easton, Pa.
Cincinnati Portland Cem. Corp., Kingsport, Tenn.
Dixie Portland Cement Co., Chattanooga, Tenn.
Hartman Cement Co., Inc., Wm. G., Philadelphia, Pa.
Ironport Portland Cement Co., Ironport, O.
Kirkpatrick Sand & Cem. Co., Birmingham, Ala.
Kosmos Portland Cement Co., Inc., Louisville, Ky.
Security Cement & Lime Co., Baltimore, Md.
Southern States Portland Cem. Co., Rockport, Md.
Standard Portland Cement Co., Leeds, Ala.
Tidewater Portland Cement Co., Baltimore, Md.
- Cement Machinery.**
Aising Engineering Co., J. R., New York, N. Y.
Power & Mining Machinery Co., Cudahy, Wis.
Raymond Bros. Impact Pulv. Co., Chicago, Ill.
- Chains. (Dredge, Quarry, Steam Shovel.)**
Standard Chain Co., Pittsburgh, Pa.
Weimer Chain & Iron Co., Lebanon, Pa.
- Channeled.**
Ingersoll-Rand Co., New York, N. Y.
- Checks, Metal. (Factory, Time and Mds.)**
American Railway Supply Co., New York, N. Y.
- Chemists.**
Agee, G. Worthen, Memphis, Tenn.
Barrows Laboratory Co., Memphis, Tenn.
Berkeley, W. N., Annapolis, Md.
Burn, Harry, Birmingham, Ala.
Davis, Geo. C., Philadelphia, Pa.
Drane, Frank P., Charlotte, N. C.
Froehling & Robertson, Richmond, Va.
Hunt & Co., Robt. W., Chicago, Ill.
Lawrence, James C., Memphis, Tenn.
McKenna, Dr. Chas. F., New York, N. Y.
Payne, Jas. H., Yorktown, Va.
Pritchard, Thos. W., Wilmington, N. C.
- Chimneys. (Steel-Concrete.)**
Specialty Eng. Co., Houston, Tex.
Weber Chimney Co., Chicago, Ill.
- Chloride Accumulator.**
Electric Storage Battery Co., The, Phila., Pa.
- Chucks.**
Morse Twist Drill & Mch. Co., New Bedford, Mass.
- Cities and Towns. (Commercial and Industrial Opportunities.) [See Industrial, Agricultural and Commercial Opportunities.]**
- Clayworking Machinery. [See Brick and Clayworking Mch. and Supplies.]**
- Cleansing Compound. (Floors, etc.)**
India Alkali Works, Boston, Mass.
- Clocks. (Time Recorders.)**
Kaiser, Louis E., Baltimore, Md.
- Clocks. (Watchman.)**
Kaiser, Louis E., Baltimore, Md.
- Coal.**
Alabama Con. Coal & Iron Co., Birmingham, Ala.
Cincinnati Coal Corp., Dante, Va.
Clinchfield Fuel Co., Spartanburg, S. C.
Consolidation Coal Co., Inc., New York, N. Y.
Pittsburgh-Buffalo Co., Pittsburgh, Pa.
Tennessee Coal, Iron & R. R. Co., B'ham, Ala.

Coal Cutters.

Ingersoll-Rand Co., New York, N. Y.
Jeffrey Mfg. Co., Columbus, O.

Coal Handling Machinery.

Bartlett & Snow Co., C. O., Cleveland, O.
Brown Hoisting Mch. Co., Cleveland, O.
Hayward Co., New York, N. Y.
Hunt Co., C. W., West Brighton, N. Y.
Jeffrey Mfg. Co., Columbus, O.
Link-Belt Co., Nicetown (Philadelphia), Pa.
Mead-Morrison Mfg. Co., Cambridge, Mass.
Robins Conveying Belt Co., New York, N. Y.
Williams Co., The G. H., Cleveland, O.

Coal Tar and By-Products.

Barrett Mfg. Co., Philadelphia, Pa.

Coke.

Alabama Coal and Iron Co., Birmingham, Ala.
Pittsburgh-Buffalo Co., Pittsburgh, Pa.
Tennessee Coal, Iron & R. R. Co., B'gh'm, Ala.

Columns.

(Porch, Interior, Pergola.)
Nickerson Mfg. Co., Knoxville, Tenn.

Columns and Lintels.

(Cast Iron.)
Tuscaloosa Iron Works, Tuscaloosa, Ala.

Concrete Chutes.

C. H. & E. Mfg. Co., Milwaukee, Wis.

Concrete Construction.

(Reinforced.)
American Steel & Wire Co., Chicago, Ill.
Brown Hoisting Machinery Co., Cleveland, O.
Ferro Concrete Construction Co., Cincinnati, O.
Foster-Creighton-Gould Co., Nashville, Tenn.
Jeffrey Mfg. Co., Columbus, O.
Reichert Mfg. Co., Milwaukee, Wis.
Specialty Eng. Co., Houston, Tex.

Concrete Curb Protection.

(Steel.)
Steel Protected Concrete Co., Philadelphia, Pa.

Concrete Dams.

Amhurst Hydraulic Const. Co., Boston, Mass.
Hydraulic Properties Co., New York, N. Y.
Multiple Arch Hydraulic Const. Co., Ltd., Spartanburg, S. C.

Concrete Forms.

(Metal.)
Merillat Culvert Core Co., Winfield, Iowa.
Zeichert Mfg. Co., Milwaukee, Wis.

Concrete Mixers.

Arnold, F. T., New London, Conn.
Clough, John G., Quincy, Ill.
Jeffrey Mfg. Co., Columbus, O.
Marsh-Capron Mfg. Co., Chicago, Ill.
Smith Co., T. L., Atlanta, Ga.
Standard Scale & Supply Co., Pittsburgh, Pa.

Concrete Pile.

(Corrugated.)
The Underground Const. Co., St. Louis, Mo.

Concrete Reinforcing Bars.

Carnegie Steel Co., Pittsburgh, Pa.
Concrete-Steel Co., The, New York, N. Y.
Franklin Steel Co., Franklin, Pa.

Concrete Ties.

Universal Concrete Tie Co., New Orleans, La.

Condensers.

Alberger Pump & Condenser Co., New York, N. Y.
Dean Bros. Steam Pump Wks., Indianapolis, Ind.
Westinghouse Machine Co., Pittsburgh, Pa.
York Mfg. Co., York, Pa.

Conductor Pipe.

Edwards Mfg. Co., Cincinnati, O.
Hussey & Co., C. G., Pittsburgh, Pa.
Milwaukee Corrugating Co., Milwaukee, Wis.

Contractors.

(Diamond Drill.)
Ameling Prospecting Co., H. R., St. Louis, Mo.

Contractors.

(Hydro-Electric Developments.)
Amhurst Hydraulic Const. Co., Boston, Mass.
Hydraulic Properties Co., New York, N. Y.
Multiple Arch Hyd. Const. Co., Spartanburg, S. C.

Contractors' Machinery and Supplies.

(See also Hoisting Machinery.)
American Engineering Co., Philadelphia, Pa.
American Hoist & Derrick Co., St. Paul, Minn.
American Locomotive Co., New York, N. Y.
Augusta Northern Railway, Saluda, S. C.
Austin Mfg. Co., Chicago, Ill.
Case Threshing Mch. Co., Inc., J. I., Racine, Wis.
Clyde Iron Works, Duluth, Minn.
Contractors' Plant Mfg. Co., Buffalo, N. Y.
Exeter Machine Works, Pittsford, Pa.
Flory Mfg. Co., S., Bangor, Pa.
Hyde Bros. & Co., Pittsburgh, Pa.
Ingersoll-Rand Co., New York, N. Y.
Males Co., Cincinnati, O.
Marine Metal & Supply Co., New York, N. Y.
Maryland Equipment & Supply Co., Baltimore, Md.
Mead-Morrison Mfg. Co., Cambridge, Mass.
Moulton Mch. Co., Chicago, Ill.
Oliver Mfg. Co., Wm. J., Knoxville, Tenn.
Pickett Co., Inc., H. W., Philadelphia, Pa.
Pipe & Contractors' Supply Co., New York, N. Y.
Robins Conveying Belt Co., New York, N. Y.
Smith Co., T. L., Atlanta, Ga.
Steubner Iron Works, G. L., Long Island City, N. Y.

Conveying Machinery.

Bartlett & Snow Co., C. O., Cleveland, O.
Brown Hoisting Mch. Co., Cleveland, O.
Caldwell & Son Co., H. W., Chicago, Ill.
Flory Mfg. Co., S., Bangor, Pa.
Hayward Co., New York, N. Y.
Hunt Co., C. W., West Brighton, N. Y.
Jeffrey Mfg. Co., Columbus, O.
Lidgerwood Mfg. Co., New York, N. Y.
Link-Belt Co., Nicetown (Philadelphia), Pa.
Mead-Morrison Mfg. Co., Cambridge, Mass.
McLannan-Stone Mach. Co., Hollidaysburg, Pa.
Robins Conveying Belt Co., New York, N. Y.
Taplin-Rice-Clerkin Co., Akron, O.

Cooling Towers.

Alberger Pump & Condenser Co., New York, N. Y.
Barnwell-Dawley Mfg. Co., St. Louis, Mo.

Cordage.

American Mfg. Co., New York, N. Y.
Broderick & Bascom Rope Co., St. Louis, Mo.
Columbian Rope Co., Auburn, N. Y.
International Cotton Mills Corp., New York, N. Y.
Plymouth Cordage Co., North Plymouth, Mass.

Copperage Stock and Box Shook Machinery.

Peter Gerlach Co., Cleveland, O.

Core Drilling.

(Contractors.)
Ameling Prospecting Co., H. R., St. Louis, Mo.

Cordage Machinery.

Basell-Dawes Machinery Co., Boston, Mass.

Corn-Mill Machinery.

Kendyke & Marmon Co., Indianapolis, Ind.
Raymond Bros. Impact Pulv. Co., Chicago, Ill.
Starr Co., B. F., Baltimore, Md.
Wolf Co., Chambersburg, Pa.

Cotton Duck.

International Cotton Mills Corp., New York, N. Y.

Cotton Oil and Products.

American Cotton Oil Co., New York, N. Y.

Cotton Yarns.

(Commission Merchants.)
Paulson, Linkroum & Co., New York, N. Y.

Cotton-Gin Machinery.

Carver Cotton Gin Co., East Bridgewater, Mass.
Continental Gin Co., Birmingham, Ala.
Gibbes Machinery Co., Columbia, S. C.

Cotton-Mill Machinery.

American Mach. & Mfg. Co., Charlotte, N. C.
American Supply Co., Providence, R. I.
Draper Co., Hopedale, Mass.

Cotton-Mill Machinery.

French Oil Mill Machinery Co., Piqua, Ohio.
Kilman Machine Shop, Lowell, Mass.
Lowell Machine Shop, Lowell, Mass.
Mason Machine Works, Tinton, Mass.
Saco-Pettee Co., Newton Upper Falls, Mass.
Whitins Machine Works, Whitinsville, Mass.
Whitinsville Spinn'g Ring Co., Whitinsville, Mass.

Cotton-Mill Supplies.

American Supply Co., Providence, R. I.
Whitinsville Spinn'g Ring Co., Whitinsville, Mass.

Cottonseed-Oil Machinery.

Buckeye Iron & Brass Works, Dayton, O.
Burruss Engineering Co., Atlanta, Ga.
Callahan Co., W. F., Dayton, O.
Cardwell Machine Co., Richmond, Va.
Carver Cotton Gin Co., East Bridgewater, Mass.
Continental Gin Co., Birmingham, Ala.
French Oil Mill Machinery Co., Piqua, Ohio.
Murray Co., The, Atlanta, Ga.
Raymond Bros. Impact Pulv. Co., Chicago, Ill.

Couplings.

American Spiral Pipe Works, Chicago, Ill.
Brown Co., A. & P., New York, N. Y.
Caldwell & Son Co., H. W., Louisville, Ky.
Golden's Foundry & Machine Co., Columbus, Ga.
Pratt & Cady Co., Hartford, Conn.
Roversford Fdry & Mch. Co., Roversford, Pa.
Wood's Sons, T. B., Chambersburg, Pa.

Couplings.

(Car.)
Weimer Chain & Iron Co., Lebanon, Pa.
(Hose, Air, Gas, Steam and Water.)
National Tube Co., Pittsburgh, Pa.

Coverings.

(Pipe, Boiler, etc.)
Johns-Manville Co., H. W., New York, N. Y.
Southern Pipe Covering Co., Inc., Richmond, Va.

Cowls.

Pullman Auto. Ventilator Mfg. Co., York, Pa.

Cranes.

(Locomotive.)
American Hoist & Derrick Co., St. Paul, Minn.
Brown Hoisting Machinery Co., Cleveland, O.
Exeter Machine Works, Pittsford, Pa.
Ohio Locomotive Crane Co., Bucyrus, O.

Cranes.

(Traveling, Hand, Power, Hydraulic.)
Brown Hoisting Machinery Co., Cleveland, O.
Hayward Co., New York, N. Y.
Lane Mfg. Co., Montpelier, Vt.
Northern Engineering Works, Detroit, Mich.
Speidel, J. G., Reading, Pa.

Crayons.

Georgia Talc Co., Asheville, N. C.

Crematories.

(Garbage.)
Specialty Eng. Co., Houston, Tex.

Crescoted Wood Block.

(Contractors for Laying.)
Crescoted Wood Block Pav. Co., New Orleans, La.

Crescoting Works.

American Crescote Works, New Orleans, La.
Gulport Crescoting Co., Gulfport, Miss.
Internat'l Crescoting & Cons. Co., Galveston, Tex.
National Lumber & Creos. Co., Texarkana, Ark.
Southern Crescoting Co., Ltd., Slidell, La.
Southern Wood Preserving Co., Atlanta, Ga.

Crossarms and Pins.

Electrical Engineering & Cont'g Co., Raleigh, N. C.
Internat'l Crescoting & Cons. Co., Galveston, Tex.
Southern Crescoting Co., Ltd., Slidell, La.
Western Electric Co., New York, N. Y.

Cross Arms.

(Wood Crescoted.)
American Crescote Wks., New Orleans, La.

Crossings.

(See Railroad Frogs and Switches.)

Crossing Machine.

Standard Cross Tie Mch. Co., New Orleans, La.

Crossties.

(Crescoted.)
Internat'l Crescoting & Cons. Co., Galveston, Tex.
National Lumber & Creos. Co., Texarkana, Ark.
Naylor & Co., S. E., Gulfport, Miss.
Southern Crescoting Co., Ltd., Slidell, La.

Crossties.

(Reinforced Concrete.)
Universal Concrete Tie Co., New Orleans, La.

Crossties.

(Steel.)
Carnegie Steel Co., Pittsburgh, Pa.

Crushers.

(Corn and Cob.)
Jeffrey Mfg. Co., Columbus, O.
Raymond Bros. Impact Pulv. Co., Chicago, Ill.
Williams Pat. Crusher & Pulv. Co., Chicago, Ill.

Crushers.

(Rock.)
Austin Mfg. Co., Chicago, Ill.
Case Threshing Mch. Co., Inc., J. I., Racine, Wis.
Cresson Co., Geo. V., Philadelphia, Pa.
Power & Mining Machinery Co., Oudaby, Wis.
Raymond Bros. Impact Pulv. Co., Chicago, Ill.
Smith Co., T. L., Atlanta, Ga.
Universal Road Mch. Co., Kingston, N. Y.
Western Wheeled Scraper Co., Aurora, Ill.

Crushing and Pulverizing Machinery.

Alaing Engineering Co., J. H., New York, N. Y.
Austin Mfg. Co., Chicago, Ill.
Bartlett & Snow Co., C. O., Cleveland, O.
Cresson Co., Geo. V., Philadelphia, Pa.
Jeffrey Mfg. Co., Columbus, O.
McLannan-Stone Mach. Co., Hollidaysburg, Pa.
Pratt Engineering & Mach. Co., Atlanta, Ga.
Raymond Bros. Impact Pulv. Co., Chicago, Ill.
Taplin-Rice-Clerkin Co., Akron, O.
Walker & Elliott, Wilmington, Del.
Williams Pat. Crusher & Pulv. Co., Chicago, Ill.
Western Wheeled Scraper Co., Aurora, Ill.

Culverts.

(Corrugated Metal.)
American Culvert Mfg. Co., Buechel, Ky.
American Rolling Mill Co., Middletown, O.
Birmingham Metal Products Co., B'gh'm, Ala.
Canton Culvert Co., The, Canton, O.
Dixie Culvert & Metal Co., Atlanta, Ga.
Harry Bros. Co., Newport, Ky.
Harry Steel Co., O. K., St. Louis, Mo.
Kentucky Culvert Mfg. Co., Buechel, Ky.
New Orleans Rfg. & Metal Wks., New Orleans, La.
North Carolina Metal Culv. Co., Greensboro, N. C.
Roanoke Bridge Co., Roanoke, Va.
Tennessee Metal Culvert Co., Nashville, Tenn.
Virginia Metal & Culvert Co., Inc., Roanoke, Va.

Culverts.

(Vitrified Pipe.)
Bibb Sewer Pipe Co., Macon, Ga.

Culverts.

Stevens Sons Co., H., Macon, Ga.

Cupola Furnaces.

Northern Engineering Works, Detroit, Mich.

Paxson Co., J. W., Philadelphia, Pa.

Petroleum Iron Works Co., Sharon, Pa.

Custom House Brokers.

Howard & Co., Savannah, Ga.

Cuts.

(Half-tone, Line, etc.)
Baltimore Maryland Engr. Co., Baltimore, Md.

Cutter Heads.

(Woodworking.)
Shlimer & Sons, Samuel J., Milton, Pa.

Cutter Grinders.

Abrasive Material Co., Philadelphia, Pa.

Vitrified Wheel Co., Westfield, Mass.

Dams.

(Multiple Arch Masonry.)
Multiple Arch Hydraulic Const. Co., Ltd., Spartanburg, S. C.

Dams.

(Reinforced Concrete.)
Amhurst Hydraulic Const. Co., Boston, Mass.

Hydraulic Properties Co., New York, N. Y.

Derricks and Derrick Fittings.

American Hoist & Derrick Co., St. Paul, Minn.

Contractors' Plant Mfg. Co., Buffalo, N. Y.

Moulton Machine Co., Chicago, Ill.

National Hoisting Engine Co., Harrison, N. J.

Designers and Illustrators.

(Printed Matter.)
Baltimore Maryland Engr. Co., Baltimore, Md.

Ditching Machinery.

American Hoist & Derrick Co., St. Paul, Minn.

American Locomotive Co., New York, N. Y.

Fairbanks Steam Shovel Co., Marion, O.

Hayward Co., The, New York, N. Y.

Marion-Osgood Co., Marion, O.

Marion Steam Shovel Co., Marion, O.

Moulton Machine Co., Chicago, Ill.

Williams Co., The G. H., Cleveland, O.

Doors.

(Birch Veneered.)
Masse & Felton Lumber Co., Macon, Ga.

Doors.

(Steel Rolling.)
Kinnear Mfg. Co., Columbus, O.

Doors.

(Tin Clad.)
Victor Mfg. Co., Newburyport, Mass.

Doors.

(Partitions. Metallic.)
Dahlstrom Metallic Door Co., Jamestown, N. Y.

Doors.

(Sash and Blinds.)
Columbus Iron Works Co., Columbus, Ga.

Masse & Felton Lumber Co., Macon, Ga.

Norfolk Building Supplies Corp., Norfolk, Va.

Draftsmen's Supplies.

Weber & Co., F., Philadelphia, Pa.

Dredge Chains.

Standard Chain Co., Pittsburgh, Pa.

Weimer Chain & Iron Co., Lebanon, Pa.

Dredge Cutters.

Norborn Engineering Co., Philadelphia, Pa.

Dredges.

(See Excavating Machinery.)

Drills.

(Pneumatic.) (See also Drills, Rock and Mining.)

Drills.

(Prospecting.)
Fort Wayne Electric Works, Madison, Wis.

Ingersoll-Rand Co., New York, N. Y.

Keystone Steam Well Mach. Co., Beaver Falls, Pa.

Drills.

(Rock and Mining.)
Chicago Pneumatic Tool Co., Chicago, Ill.

Fort Wayne Electric Works, Madison, Wis.

Independent Pneumatic Tool Co., Chicago, Ill.

Ingersoll-Rand Co., New York, N. Y.

Jeffrey Mfg. Co., Columbus, O.

Wickes Bros., Jersey City, N. J.

Drills.

(Twist.)
Manning, Maxwell & Moore, Inc., New York, N. Y.

McKenna Bros. Brass Co., Pittsburgh, Pa.

Morse Twist Drill & Mch. Co., New Bedford, Mass.

Drive Well Points and Well Supplies.

National Tube Co., Pittsburgh, Pa.

Drop Forgings.

American Spiral Pipe Works, Chicago, Ill.

Globe Malleable Iron & Steel Co., Syracuse, N. Y.

Drop Forging Machinery.

Bilas Co., E. W., Brooklyn, N. Y.

Drying Machinery.

American Process Co., New York, N. Y.

Bailey-Lebby Co., The, Charleston, S. C.

Buffalo Forge Co., Buffalo, N. Y.

Grand Rapids Veneer Wks., Grand Rapids, Mich.

Ruggles-Coles Engineering Co., New York, N. Y.

Sturtevant Co., B. F., Hyde Park, Mass.

Drykilns.

Buffalo Forge Co., Buffalo, N. Y.

Grand Rapids Veneer Wks., Grand Rapids, Mich.

Union Iron Works Co., Selma, Ala.

Dumbwaiters.

(Hand Power.)
McKenna Bros. Brass Co., Pittsburgh, Pa.

Sidney Elevator & Mfg. Co., Sidney, O.

Speidel, J. G., Reading, Pa.

CLASSIFIED INDEX OF ARTICLES ADVERTISED

- Engineers—**
GAS.
 Lea, Henry I., Chicago, Ill.
- GEOLOGICAL.**
 Davis, Geo. C., Philadelphia, Pa.
 Fols, F. Julius, Lexington, Ky.
 Froehling & Robertson, Richmond, Va.
 Gould Co., Oklahoma City, Okla.
- HYDRAULIC, SANITARY AND SEWERAGE.**
 Brindley Co., New York, N. Y.
 Brown, H. T., Nashville, Tenn.
 Brown, S. D., Chattanooga, Tenn.
 Dabney Engineering Co., The, Memphis, Tenn.
 Groak Engr. Co., Irwin, D., Chicago, Ill.
 Harlow Co., James H., Baltimore, Md.
 Hutton, T. Chalkley, Wilmington, Del.
 Hill, Nicholas S., Jr., New York, N. Y.
 Leete-Maupin Engineering Co., Huntington, W. Va.
 Manning-Hughes Co., Camden, S. C.
 McCarty Co., The J. B., Atlanta, Ga.
 Multiple Arch Hydraulic Const. Co., Ltd., Spar-
 tanburg, S. C.
 Myers, E. W., Greensboro, N. C.
 Pew, Arthur, Atlanta, Ga.
 Specialty Eng. Co., Houston, Tex.
 Tucker & Laxton, Charlotte, N. C.
- ICE AND REFRIGERATING.**
 Consolidated Engineering Co., Baltimore, Md.
 Tait-Nordmeyer Eng. Co., St. Louis, Mo.
- LANDSCAPE.**
 Drane, Brent S., Charlotte, N. C.
 Howard, J. Spence, Baltimore, Md.
- REINFORCED CONCRETE CONSTRUCTION, BUILD-
 INGS, BRIDGES, ETC.**
 Gardner & Howe, Memphis, Tenn.
- WATER-WORKS.**
 Myers, E. W., Greensboro, N. C.
- Engines.**
GAS AND GASOLINE.
 Fairbanks, Morse & Co., Chicago, Ill.
 Heer Engine Co., Portsmouth, Ohio.
 International Harvester Co. of America, Chicago,
 Illinois.
 Mletz, A., New York, N. Y.
 Myrick Mch. Co., Olean, N. Y.
 Novo Engine Co., Lansing, Mich.
 Otto Gas Engine Works, Philadelphia, Pa.
 Power Mfg. Co., Lima, Ohio.
 Quincy Engine Co., Quincy, Pa.
 Southern Engine & Boiler Works, Jackson, Tenn.
 Westinghouse Machine Co., The, Pittsburgh, Pa.
 Van Dusen, Boyce & Co., Columbus, O.
- OIL.**
 Covington Mch. Co., Covington, Va.
 Mletz, A., New York, N. Y.
 Power Mfg. Co., Lima, O.
- Steam.**
 Allis-Chalmers Co., Milwaukee, Wis.
 American Engine Co., Bound Brook, N. J.
 American Hoist & Derrick Co., St. Paul, Minn.
 Ball Engine Co., Erie, Pa.
 Baltimore Machine Works, Baltimore, Md.
 Buffalo Forge Co., Buffalo, N. Y.
 Cameron & Barkley Co., Charleston, S. C.
 Chicago House Wrecking Co., Chicago, Ill.
 Cooper Co., C. & G., Mt. Vernon, O.
 Engberg's Elmt. & Bch. Wks., St. Joseph, Mich.
 Gibbs Machine Co., Columbia, S. C.
 Griffith & Wedge Co., The, Zanesville, O.
 Harrisburg Fdy. & Mch. Wks., Harrisburg, Pa.
 Houston, Stanwood & Gamble Co., Cincinnati, O.
 Leffel & Co., James, Springfield, O.
 Lombard Iron Works, Augusta, Ga.
 Mecklenburg Iron Works, Charlotte, N. C.
 Morris Machine Works, Baldwinville, N. Y.
 Murray Iron Works Co., Burlington, Ia.
 Nagle Corlies Engine Wks., Erie, Pa.
 Oil City Boiler Co., Oil City, Pa.
 Phoenix Iron Works Co., Meadville, Pa.
 Price Machinery Co., S. M., Norfolk, Va.
 Ridgway Dynamo & Engine Co., Ridgway, Pa.
 Schofield's Sons Co., J. S., Macon, Ga.
 Smith-Courtney Co., Richmond, Va.
 Sturtevant Co., B. F., Hyde Park, Mass.
 Union Iron Works Co., Selma, Ala.
 Vilter Mfg. Co., Milwaukee, Wis.
 Westinghouse Machine Co., Pittsburgh, Pa.
- Envelopes. (Stationery.)**
 Young & Selden Co., Baltimore, Md.
- Excavating Machinery. (Steam Shovels, etc.)**
 American Locomotive Co., New York, N. Y.
 Fairbanks Steam Shovel Co., Marion, O.
 Hayward Co., New York, N. Y.
 Jeffrey Mfg. Co., Columbus, O.
 Lidgetwood Mfg. Co., New York, N. Y.
 Males Co., Cincinnati, O.
 Marion-Osgood Co., Marion, O.
 Marion Steam Shovel Co., Marion, O.
 Monaghan Machine Co., Chicago, Ill.
 Norbom Engineering Co., Philadelphia, Pa.
 Williams Co., The G. H., Cleveland, O.
- Excelsior Machinery.**
 Kilne, Lewis T., Alpena, Mich.
- Exhaust Heads.**
 Abendroth & Root Mfg. Co., Newburgh, N. Y.
 American Spiral Pipe Works, Chicago, Ill.
 Hoppes Mfg. Co., Springfield, O.
- Exhibits. (Machinery Builders' Equipment
 and Supplies.)**
 Builders' Exchange, Baltimore, Md.
- Expansion Bolts.**
 Clinch Exp'n Bolt & Eng. Co., New York, N. Y.
- Expansion Joints.**
 Alberger Pump & Condenser Co., New York, N. Y.
 Badger & Sons Co., E. B., Boston, Mass.
- Explosives.**
 Du Pont-de Nemours Powder Co., E. I., Wilming-
 ton, Del.
 Keystone Nat'l Powder Co., Emporium, Pa.
- Factory Sites. (Town and Railroad.) [See Indus-
 trial, Agricultural and Commercial Op-
 portunities.]**
- Fans. (Electric.)**
 Bates & Bros. Co., D. L., Dayton, O.
 General Electric Co., Schenectady, N. Y.
 Robbins & Myers Co., Springfield, O.
 Western Electric Co., New York, N. Y.
 Westinghouse Elec. & Mfg. Co., Pittsburgh, Pa.
- Fans. (Ventilating.) [See Blowers, Exhaust
 Fans.]**
- Fans. (Water and Belt Driven.)**
 Bates & Bros. Co., D. L., Dayton, O.
- Fastener Driving Machines. (Corrugated
 Joint.)**
 Saranac Machine Co., St. Joseph, Mich.
- Feed-Water Heaters and Purifiers.**
 Alberger Pump & Condenser Co., New York, N. Y.
 American Water Softener Co., Philadelphia, Pa.
 Blake & Knowles Steam Pump Works, East
 Cambridge, Mass.
- Exeter Machine Works, Pittston, Pa.**
 Hoppes Mfg. Co., Springfield, O.
 Murray Iron Works Co., Burlington, Ia.
 National Pipe Bending Co., New Haven, Conn.
 Scaife & Sons Co., Wm. B., Pittsburgh, Pa.
 Stewart Heater Co., Buffalo, N. Y.
 Wilmington Iron Works, Wilmington, N. C.
- Feed-Water Heater and Purifier and Oil
 Separator Combined.**
 Blake & Knowles Steam Pump Works, East
 Cambridge, Mass.
 Stewart Heater Co., Buffalo, N. Y.
- Felt. (Building, Sheathing.)**
 Barrett Mfg. Co., Philadelphia, Pa.
- Fencing, Entrance Gates. (Iron, Steel, Wire.)**
 American Steel & Wire Co., Chicago, Ill.
 Bolles Iron & Wire Works, J. E., Detroit, Mich.
 Door Wire and Iron Works, Louisville, Ky.
 Dufur & Co., Baltimore, Md.
 New Jersey Wire Cloth Co., Trenton, N. J.
 Ohio Elevator & Mch. Co., The, Columbus, O.
- Ferrules. (Plumbers' Brass.)**
 King Mfg. Co., Birmingham, Ala.
- Fertilizer Machy. [See also Phosphate Mch.]**
 Pratt Eng. & Mch. Co., Atlanta, Ga.
 Smith Co., T. L., Atlanta, Ga.
 Walk & Murdock Iron Works, Charleston, S. C.
 Walker & Elliott, Wilmington, Del.
 Wilmington Iron Works, Wilmington, N. C.
- Files.**
 Barnett Co., G. & H., Philadelphia, Pa.
 Delta File Works, Philadelphia, Pa.
 Nicholson File Co., Providence, R. I.
- Filters. (Water for Domestic and Industrial
 Purposes.)**
 American Water Softener Co., Philadelphia, Pa.
 International Filter Co., Chicago, Ill.
 Lynn-Superior Co., The, Cincinnati, O.
 New York Con. Jewell Fil. Co., New York, N. Y.
 Roberts Filter Mfg. Co., Philadelphia, Pa.
 Scaife & Sons Co., Wm. B., Pittsburgh, Pa.
 Tucker & Laxton, Charlotte, N. C.
- Fire Alarm Boxes.**
 Balto. Mch. Products Co. (Relay Station P. O.),
 Baltimore, Md.
- Fire Clay.**
 West Virginia Fire Clay Mfg. Co., Pittsburgh, Pa.
- Fire Clay Brick. [See Brick, Fire Clay.]**
- Fire Door Fixtures.**
 Victor Mfg. Co., Newburyport, Mass.
- Fire Extinguishers.**
 Almond Sales Co., J. F., Charlotte, N. C.
 Badger & Sons Co., E. B., Boston, Mass.
 General Fire Extinguisher Co., Providence, R. I.
 Kaiser, Louis E., Baltimore, Md.
- Fire Extinguishing Apparatus.**
 General Fire Extinguisher Co., Providence, R. I.
- Fire Escapes.**
 Bolles Iron & Wire Works, J. E., Detroit, Mich.
 Chesapeake Iron Works, Baltimore, Md.
- Fireplaces. (Artistic Brick.)**
 Fluke & Co., Inc., New York, N. Y.
- Fireproof Building Construction. (Steel.)
 [See Concrete Construction.]**
- Fireproof Building Material.**
 Dahlstrom Metallic Door Co., Jamestown, N. Y.
 Johns-Manville Co., E. W., New York, N. Y.
- Fireproof Doors and Shutters.**
 Dahlstrom Metallic Door Co., Jamestown, N. Y.
 Kinmar Mfg. Co., Columbus, O.
 New Orleans Roof & Metal Co., New Orleans, La.
 Richmond Safety Gate Co., Richmond, Ind.
 Victor Mfg. Co., Newburyport, Mass.
- Fireproof Windows. [See Window Frames
 and Sashes (Fireproof).]**
- Flanges. (Iron and Steel.)**
 American Cast Iron Pipe Co., Birmingham, Ala.
 American Pipe & Construction Co., Phila., Pa.
 American Spiral Pipe Works, Chicago, Ill.
 Cameron Steam Pump Wks., A. S., New York, N. Y.
 Dart Manufacturing Co., E. M., Providence, R. I.
 Glamorgan Pipe & Foundry Co., Lynchburg, Va.
 National Tube Co., Pittsburgh, Pa.
 U. S. Cast Iron Pipe & Fdy. Co., New York, N. Y.
 Wood & Co., E. D., Philadelphia, Pa.
- Flexible Joints.**
 Moran Flex. Steam Joint Co., Inc., Louisville, Ky.
- Floor Machines.**
 Almond Sales Co., J. F., Charlotte, N. C.
- Flooring. (Cement.)**
 Dagostin & Angelini Bros., Montgomery, Ala.
- Flooring. (Hardwood, Maple, Oak.)**
 Northcross Mantel Co., W. J., Memphis, Tenn.
 Nashville Hardw'd Flooring Co., Nashville, Tenn.
- Flour and Grist Mill Machinery and Sup-
 plies.**
 Caldwell & Sons Co., H. W., Chicago, Ill.
 Nordyke & Marmon Co., Indianapolis, Ind.
 Salem Foundry & Machine Works, Salem, Va.
 Starr Co., B. F., Baltimore, Md.
 Vestch & Co., L. B., Louisville, Ky.
 Wolf Co., Chambersburg, Pa.
- Flushtank Regulator.**
 Modern Iron Works, Quincy, Ill.
- Foot Valves.**
 Cameron Steam Pump Wks., A. S., New York, N. Y.
- Forges.**
 Buffalo Forge Co., Buffalo, N. Y.
 Sturtevant Co., B. F., Hyde Park, Mass.
- Forgings.**
 Welmer Chain & Iron Co., Lebanon, Pa.
- Foundations. (Waterproof.)**
 Underground Constr. Co., The, St. Louis, Mo.
- Foundry Equipment and Supplies.**
 Paxson Co., J. W., Philadelphia, Pa.
- Foundry Facings. (Talc and Soapstone.)**
 Georgia Talc Co., Asheville, N. C.
- Freight Contractors. (Foreign and Domestic.)**
 Howard & Co., Savannah, Ga.
- Frogs. [See Railroad Frogs and Switches.]**
- Fuel Economizers.**
 Green Fuel Economizer Co., Mattawan, N. Y.
 Sturtevant Co., B. F., Hyde Park, Mass.
- Fuel Oil.**
 Gulf Refining Co., Pittsburgh, Pa.
 Texas Co., The, New York, N. Y.
- Fuel Oil Equipment.**
 Liquifuel Eng. & Const. Co., Pittsburgh, Pa.
 Petroleum Iron Works Co., Sharon, Pa.
- Fuses, Bases and Fittings.**
 Johns-Manville Co., H. W., New York, N. Y.
- Galvanized Steel and Iron.**
 American Sheet & Tin Plate Co., Pittsburgh, Pa.
 J. C. H. Galvanizing Co., Philadelphia, Pa.
 La Belle Iron Works, Steubenville, O.
 McCalla, Harold, Philadelphia, Pa.
 Moesch-Edwards Corrugating Co., Covington, Ky.
 New Orleans Roof & Metal Co., New Orleans, La.
 Wood Iron & Steel Co., Alan, Philadelphia, Pa.
 Youngstown Sheet & Tube Co., Youngstown, O.
- Galvanizing Machinery.**
 Wilfong Iron Works Co., Millard F., Phila., Pa.
- Garages. (Fireproof and Portable.)**
 Harry Steel Co., O. E., St. Louis, Mo.
- Gas Blowers. (Turbine.)**
 Terry Steam Turbine Co., New York, N. Y.
- Gas Compressors.**
 Ingersoll-Rand Co., New York, N. Y.
- Gas Engines. [See Engines, Gas.]**
- Gas Machines.**
 Kemp Mfg. Co., C. M., Baltimore, Md.
- Gas Plants.**
 Power & Mining Mchry. Co., Cudahy, Wis.
 Western Gas Construction Co., Ft. Wayne, Ind.
- Gas Producers.**
 Otto Gas Engine Works, Philadelphia, Pa.
 Westinghouse Machine Co., Pittsburgh, Pa.
 Wood & Co., E. D., Philadelphia, Pa.
- Gasoline and Kerosene.**
 Gulf Refining Co., Pittsburgh, Pa.
 Texas Co., The, New York, N. Y.
- Gas and Steam Fitters' Tools.**
 Saunders' Sons, D., Yonkers, N. Y.
- Gaskets. (Rubber.)**
 N. J. Car Spring & Rubber Co., Jersey City, N. J.
- Gears.**
 Albion-Clem Elevator Co., Philadelphia, Pa.
 Brown Co., A. & F., New York, N. Y.
 Caldwell Co., Inc., W. E., Louisville, Ky.
 Caldwell & Son Co., H. W., Chicago, Ill.
 Creslon Co., Geo. V., Philadelphia, Pa.
 Earle Gear & Machine Co., The, Philadelphia, Pa.
 Jeffrey Mfg. Co., Columbus, O.
 Poole Engineering & Machine Co., Baltimore, Md.
- Geologists.**
 Froehling & Robertson, Richmond, Va.
- Glass. (Plate, etc.)**
 Binswanger & Co., Memphis, Tenn.
- Governors. (Steam Engine.)**
 Gardner Governor Co., Quincy, Ill.
 Pickering Governor Co., Portland, Conn.
- Grain Elevator Supplies.**
 Caldwell & Sons Co., H. W., Chicago, Ill.
 Jeffrey Mfg. Co., Columbus, O.
 Link-Belt Co., Nictown (Philadelphia), Pa.
- Graphite.**
 Chester Graphite Co., Chester Springs, Pa.
 Dixon Crucible Co., Joseph, Jersey City, N. J.
- Grates and Grate Bars.**
 Mellor Furnace Engineering Co., Philadelphia, Pa.
 Thomas Grate Bar Co., Birmingham, Ala.
 Tuscaloosa Iron Works, Tuscaloosa, Ala.
- Gravel.**
 Arundel Sand & Gravel Co., Baltimore, Md.
 Carter, L. A., New Orleans, La.
 Lathrop & Co., C. P., Richmond, Va.
- Grease.**
 Albany Lubricating Co., New York, N. Y.
- Grease Cups.**
 Albany Lubricating Co., New York, N. Y.
- Greases and Lubricating Compounds.**
 Albany Lubricating Co., New York, N. Y.
 Galena Signal Oil Co., Franklin, Pa.
 Robinson & Son Co., Wm. C., Baltimore, Md.
 Texas Co., The, New York, N. Y.
- Grinders. (Gypsum, Limestone, etc.)**
 Taplin-Rice-Clerkin Co., Akron, O.
 Williams Pat. Crusher & Pulv. Co., Chicago, Ill.
- Grinding Wheels.**
 Abrasive Material Co., Philadelphia, Pa.
 Carborundum Co., Niagara Falls, N. Y.
 Norton Co., Worcester, Mass.
 Vitrited Wheel Co., Westfield, Mass.
- Grindstones.**
 Hall Grindstone Co., Constitution, Ohio.
- Groovers.**
 Huther Bros. Saw Mfg. Co., Rochester, N. Y.
- Gunpowder.**
 du Pont-de Nemours Powder Co., E. I., Wilming-
 ton, Del.
- Hammers. (Steam, Power, Pneumatic.)**
 Chicago Pneumatic Tool Co., Chicago, Ill.
 Independent Pneumatic Tool Co., Chicago, Ill.
 Ingersoll-Rand Co., New York, N. Y.
- Hand Elevators.**
 Sidney Elevator Mfg. Co., Sidney, O.
- Handle Machinery. [See Woodworking Mch.]**
- Hangers. [See Pulleys, Shafting and Hangers.]**
- Hardwood Doors and Trim.**
 Mansee & Felton Lumber Co., Macon, Ga.
- Hauling Engines. (Steam Traction.)**
 Case Threshing Mch. Co., Inc., J. I., Racine, Wis.
- Hay Tools.**
 Myers & Bro., F. M., Ashland, O.
- Heating Apparatus, Engineers and Con-
 tractors.**
 American Blower Co., Detroit, Mich.
 Buffalo Steam Pump Co., Buffalo, N. Y.
 Enterprise Steam & Hot Water Heating Co.,
 Baltimore, Md.
 Monitor Steam Generator Mfg. Co., Balto., Md.
 Peck-Hammond Co., The, Cincinnati, O.
 Richmond Engr. & Mfg. Co., Richmond, Va.
 Sturtevant Co., B. F., Hyde Park, Mass.
- Hoisting Machinery.**
 American Engineering Co., Philadelphia, Pa.
 American Hoist & Derrick Co., St. Paul, Minn.
 Brown Hoisting Mchry. Co., Cleveland, O.
 Byers Machine Co., John F., Ravens, O.
 Clyde Iron Works, Duluth, Minn.
 Contractors' Plant Mfg. Co., Buffalo, N. Y.
 Exeter Machine Works, Pittston, Pa.
 Flory Mfg. Co., S., Bangor, Pa.
 Hayward Co., New York, N. Y.
 Link-Belt Co., Nictown (Philadelphia), Pa.
 Lidgetwood Mfg. Co., New York, N. Y.
 Males Co., Cincinnati, O.
 Mead-Morrison Mfg. Co., Cambridge, Mass.
 Monaghan Machine Co., Chicago, Ill.
 Myrick Mch. Co., Olean, N. Y.
 National Hoisting Engine Co., Harrison, N. J.
 Novo Engine Co., Lansing, Mich.
 Smith Co., T. L., Atlanta, Ga.
 Stroudsburg Engine Works, Stroudsburg, Pa.
- Hoists.**
CHAIN.
 Spedel, J. G., Reading, Pa.
- ELECTRIC.**
 American Hoist & Derrick Co., St. Paul, Minn.
 C. H. & E. Mfg. Co., Milwaukee, Wis.
 Lidgetwood Mfg. Co., New York, N. Y.
 Monaghan Mch. Co., Chicago, Ill.
 Northern Engineering Wks., Detroit, Mich.
 Patten Mfg. Co., Chattanooga, Tenn.
- GASOLINE.**
 Erie Clutch & Pulley Co., Erie, Pa.
 Myrick Mch. Co., Olean, N. Y.
 Patten Mfg. Co., Chattanooga, Tenn.
- PNEUMATIC MOTORS.**
 Chicago Pneumatic Tool Co., Chicago, Ill.
 Ingersoll-Rand Co., New York, N. Y.
- Hoops, Bands, etc. (Galvanized.)**
 J. C. H. Galvanizing Co., Philadelphia, Pa.
 McCalla, Harold, Philadelphia, Pa.
- Hoops. (Barrel.)**
 American Steel & Wire Co., Chicago, Ill.
 Carnegie Steel Co., Pittsburgh, Pa.
- Hose.**
 Eureka Fire Hose Mfg. Co., New York, N. Y.
 N. J. Car Spring & Rubber Co., Jersey City, N. J.
- Hotels.**
 Emerson Hotel, Baltimore, Md.
 Hotel Essex, Boston, Mass.
- Hot Water Service Heaters.**
 Alberger Pump & Condenser Co., New York, N. Y.
- Hydrants.**
 Bourbon Copper & Brass Wks. Co., Cincinnati, O.
 Columbian Iron Works, Chattanooga, Tenn.
 Glamorgan Pipe & Foundry Co., Lynchburg, Va.
 Goulds Mfg. Co., Seneca Falls, N. Y.
 Kennedy Valve Mfg. Co., Elmira, N. Y.
 Myers & Bro., F. M., Ashland, O.
 Pratt & Cady Co., Hartford, Conn.
 Wood & Co., E. D., Philadelphia, Pa.
- Hydraulic Giants.**
 American Spiral Pipe Works, Chicago, Ill.
- Hydraulic Rams.**
 Goulds Mfg. Co., Seneca Falls, N. Y.
 Rife Engine Co., New York, N. Y.
- Hydro-Electric Power.**
 Roanoke Rapid Power Co., Roanoke Rapids, Va.
- Hydrogen.**
 International Oxygen Co., New York, N. Y.
- Ice-making Machinery and Supplies.**
 Baltimore Machine Works, Baltimore, Md.
 Columbian Iron Works Co., Columbus, Ga.
 Creamery Package Mfg. Co., De Kalb, Ill.
 Frick Co., The, Waynesboro, Pa.
 Remington Machine Co., Wilmington, Del.
 Ruessmuller-Dawley Mfg. Co., St. Louis, Mo.
 Tait-Nordmeyer Eng. Co., St. Louis, Mo.
 Vilter Mfg. Co., Milwaukee, Wis.
 Vogt Machine Co., Henry, Louisville, Ky.
 York Mfg. Co., York, Pa.
- Incorporators. (Companies.)**
 Delaware Trust Co., Wilmington, Del.
 Sieber & Co., H. F., Philadelphia, Pa.
- Industrial, Agricultural and Commercial
 Opportunities.**
- CITIES AND TOWNS.**
 Atlanta, Ga., Ga. Bureau of Indus'y & Immig'y
 Bedford City, Va., Board of Trade.
 Newport News, Va., Old Dominion Land Co.
 Texas City, Tex., Texas City Transportation Co.
 Wytheville, Va., G. S. Sexton.
- RAILROADS.**
 Atlanta, Birm'g'm, Atlantic B. R., Atlanta, Ga.
 Atlanta & W. Point B. R. Co., Montgomery, Ala.
 Baltimore & Ohio Railroad, Baltimore, Md.
 Carolina, Clinchfield & O. Ry., Johnson City, Tenn.
 Central of Georgia Ry. Co., Savannah, Ga.
 Florida East Coast Ry., St. Augustine, Fla.
 Illinois Central Railroad Co., Chicago, Ill.
 Norfolk & Western Railway, Roanoke, Va.
 Seaboard Air Line, Portsmouth, Va.
 Southern Railway Co., Washington, D. C.
 Tennessee Central Railroad Co., Cookeville, Tenn.
 Virginia Railway & Power Co., Richmond, Va.
- Industrial Minerals.**
 Howard & Co. (Brokers), Savannah, Ga.
- Industrial Track Work. [See Railways, Ind.]**
- Injectors.**
 Jenkins Bros., New York, N. Y.
 Sellers & Co., Inc., Wm., Philadelphia, Pa.
- Insulating Materials.**
 Johns-Manville Co., H. W., New York, N. Y.
- Insurance.**
 Hartford Fire Insurance Co., Hartford, Conn.
 Hartford Steam Boiler Inspection & Ins. Co.,
 Hartford, Conn.
 Maryland Casualty Co., Baltimore, Md.
- Interior Trim. (Metallic.)**
 Dahlstrom Metallic Door Co., Jamestown, N. Y.
- Iron.**
 Alabama Con. Coal & Iron Co., Birmingham, Ala.
 American Rolling Mill Co., Middletown, O.
 La Belle Iron Works, Steubenville, O.
 Milton Mfg. Co., Milton, Pa.
 Oliver Iron & Steel Co., Pittsburgh, Pa.
 Republic Iron & Steel Co., Youngstown, O.
 Tennessee Coal, Iron & R. R. Co., Birm'g'm, Ala.
 Wood Iron & Steel Co., Alan, Philadelphia, Pa.
- Irrigation Machinery.**
 Blakelee Mfg. Co., Du Quoin, Ill.
 Cameron Steam Pump Wks., A. S., New York, N. Y.

<p>Kettles. (Drossing, Tinning, Smelting.) Willing Iron Works Co., Millard F., Philadelphia, Pa.</p> <p>Kettles. (Steam Jacket.) Bader & Sons Co., E. B., Boston, Mass. Petroleum Iron Works Co., Sharon, Pa.</p> <p>Key Seater. (Portable.) Barr & Son, John T., Brooklyn, N. Y.</p> <p>Knitting Machinery. Acme Knitting Mch. & Needle Co., Franklin, N. H.</p> <p>Lamp Posts. (Electric, Gas.) Western Gas Construction Co., Ft. Wayne, Ind.</p> <p>Lamps. (Arc and Incandescent.) Columbia Incandescent Lamp Wks., St. Louis, Mo. Foster Incandescent Lamp Wks., Foster, O. General Electric Co., Schenectady, N. Y. Kentucky Electric Co., Inc., Owensboro, Ky. Lee Electric Co., Baltimore, Md. Piedmont Electric Co., Asheville, N. C. Western Electric Co., New York, N. Y. Westinghouse Elec. & Mfg. Co., Pittsburgh, Pa.</p> <p>Lamps. (Carbon and Tungsten.) Newman Mfg. Co., Cincinnati, Ohio.</p> <p>Lands. (Mineral, Timber, Farm, etc.) Barr, J. H. Co., Philadelphia, Pa. Fendig & Co., Albert, Brunswick, Ga. Moore & Co., G. P., Atlanta, Ga. Smith, Shelby, Atlanta, Ga.</p> <p>Lath. (Expanded Metal.) Milwaukee Corrugating Co., Milwaukee, Wis.</p> <p>Lathes. (Engine.) Greaves, Klusman & Co., Cincinnati, O. Manning, Maxwell & Moore, Inc., New York, N. Y.</p> <p>Lawn Furniture. (Wire.) Sollies Iron & Wire Works, J. E., Detroit, Mich. Dufar & Co., Baltimore, Md. Dufar, Baggott & Co., Baltimore, Md.</p> <p>Leadite. Leadite Co., Inc., The, Philadelphia, Pa.</p> <p>Lime. (Hydrated.) Security Cement & Lime Co., Baltimore, Md. Tidewater Portland Cement Co., Baltimore, Md.</p> <p>Limestone Products. Security Cement & Lime Co., Baltimore, Md.</p> <p>Liquor Filters. International Filter Co., Chicago, Ill.</p> <p>Lithographers, Engravers. Yonck & Selden Co., Baltimore, Md.</p> <p>Loans. Assets Realization Co., Chicago, Ill.</p> <p>Lockers. (Metal.) Kellogg Metal Ceiling Mfg. Co., S., Pittsburgh, Pa.</p> <p>Locomotives. INDUSTRIAL. American Locomotive Co., New York, N. Y. Baldwin Equip. & Supply Co., Chicago, Ill. Baldwin Locomotive Works, The, Philadelphia, Pa. Byers Machine Co., John F., Havana, O. Claxet Mfg. Co., Corry, Pa. Davenport Locomotive Works, Davenport, Ia. Helsler Locomotive Works, Erie, Pa. Jeffrey Mfg. Co., Columbus, O. Lima Locomotive & Machine Co., Lima, O. Males Co., Cincinnati, O. Porter Co., H. K., Pittsburgh, Pa. Valeau Iron Works, Wilkes-Barre, Pa.</p> <p>RAILWAY. American Locomotive Co., New York, N. Y. Baldwin Equipment & Supply Co., Chicago, Ill. Baldwin Locomotive Works, The, Philadelphia, Pa. Lima Locomotive & Machine Co., Lima, O. Males Co., Cincinnati, O. Southern Supply Co., Norfolk, Va.</p> <p>Looms and Weaving Machinery. Graper Co., Hopedale, Mass. Mason Machine Works, Taunton, Mass.</p> <p>Lubricants. Albany Lubricating Co., New York, N. Y. Chester Graphite Co., Chester Springs, Pa.</p> <p>Lumber. Industrial Lumber Co., Elizabeth, La. Massee & Felton Lumber Co., Macon, Ga.</p> <p>Lumber. (Creosoted.) American Creosote Wks., New Orleans, La.</p> <p>Lumber. (Heavy Construction, Pitch Pine, etc.) Massee & Felton Lumber Co., Macon, Ga. National Lumber & Creosote Co., Texarkana, Ark. Naylor & Co., S. E., Gulfport, Miss.</p> <p>Lumber. (Yellow Pine.) Industrial Lumber Co., Elizabeth, La.</p> <p>Lumber Buggies. Sole Steam Feed Works, Meridian, Miss.</p> <p>Lumber Stackers. Sole Steam Feed Works, Meridian, Miss.</p> <p>Machinery. (Special.) Baltimore Machine Works, Baltimore, Md. Blaw Co., E. W., Brooklyn, N. Y. Kline, Lewis T., Alpena, Mich. Lester & Co., Charles, Brooklyn, N. Y. Oil City Boiler Co., Oil City, Pa. Ryersford Fdry. & Mch. Wks., Ryersford, Pa. Stratton & Bragg Co., Petersburg, Va. Universal Telegraphic Co., Baltimore, Md.</p> <p>Machinery and Supplies. (New and Second-Hand Bargains.) Augusta Northern Railway, Saluda, S. C. Barnett, Craft & Kaufman Milling Co., St. Louis, Mo. Boston Iron & Metal Co., Baltimore, Md. Central Transfer Co., Baltimore, Md. Chicago House Wrecking Co., Chicago, Ill. Cleveland Belling & Machinery Co., Cleveland, O. Dexter Railway Equipment Co., Chicago, Ill. Dunets & Son, New York, N. Y. Oliver Machine & Tool Co., Philadelphia, Pa. Ritter's Sons Co., Henry A., Philadelphia, Pa. Hyde Bros. & Co., Pittsburgh, Pa. Lehman, Charles T., Birmingham, Ala. Lever & Co., E., Philadelphia, Pa. Lodge & Shipley Machine Tool Co., Cincinnati, O. Marine Metal & Supply Co., New York, N. Y. Mathes Iron & Metal Co., G., St. Louis, Mo. Flammoulier Engineering Co., Chicago, Ill. Pickett Co., Inc., H. W., Philadelphia, Pa. Pipe & Contractors' Supply Co., New York, N. Y. Pittsburgh Mch. & Equip. Co., Pittsburgh, Pa. Frentiss Tool & Supply Co., New York, N. Y. Lodge Machinery Co., Cincinnati, O. Rood Co., Howard W., Philadelphia, Pa. Sammons Co., Ltd., E. A., New Orleans, La. Samuel, Frank, Philadelphia, Pa. Seyfer's Sons, Inc., L. F., Philadelphia, Pa. South Side Fdry. & Mch. Co., Charleston, W. Va.</p>	<p>Southern Supply Co., Norfolk, Va. Tampa Machinery Exchange, Tampa, Fla. Texas Supply Co., Beaumont, Tex. Toomey, Frank, Philadelphia, Pa. Winterer Co., Herman L., Philadelphia, Pa. Yeasley, Thomas, Philadelphia, Pa.</p> <p>Machine Tools. Greaves, Klusman & Co., Cincinnati, O. Manning, Maxwell & Moore, Inc., New York, N. Y. Stephoe Shaper Co., John, Cincinnati, O.</p> <p>Machinists. (Engineers.) American Mch. & Mfg. Co., Charlotte, N. C. Roanoke Iron Works, Inc., Roanoke, Va. Stratton & Bragg Co., Petersburg, Va. Universal Telegraphic Co., Baltimore, Md.</p> <p>Magnesia Materials. Johns-Manville Co., H. W., New York, N. Y.</p> <p>Magnet Electro. (For-Cottonseed, Linters and Hullers.) Dixie Electro Magnet Co., Memphis, Tenn.</p> <p>Magnetic Separators. Paxson Co., J. W., Philadelphia, Pa.</p> <p>Mail Chutes. Cutler Mail Chute Co., Rochester, N. Y.</p> <p>Mantels. (Wooden.) Northcross Mantel Co., W. J., Memphis, Tenn.</p> <p>Marble Work. (Interior.) Dagostin & Angelini Bros., Montgomery, Ala.</p> <p>Masonry Dams. Multiple Arch Hydraulic Const. Co., Ltd., Spar-tanburg, S. C.</p> <p>Mechanical Draft. Buffalo Steam Pump Co., Buffalo, N. Y. Richmond Engr. & Mfg. Co., Richmond, Va. Sturtevant Co., B. F., Hyde Park, Mass.</p> <p>Metal Ceilings. [See Ceilings, Metal.]</p> <p>Metaline. Metaline Co., Long Island City, N. Y.</p> <p>Metal Cores. (For Concrete Culverts.) Merillat Culvert Core Co., Winfield, Iowa.</p> <p>Metal Culverts. [See Culverts.] (Corrugated Metal.)</p> <p>Metal Shingles. Burris & Co., John T., Anderson, S. C. Chattanooga Mfg. & Fdry. Co., Chattanooga, Tenn. Cincinnati Sheet Metal & Rfg. Co., Cincinnati, O. Cortright Metal Roofing Co., Philadelphia, Pa. Edwards Manufacturing Co., Cincinnati, O. Hyndman Roofing Co., Cincinnati, O.</p> <p>Metal Window Frames and Sashes. Detroit Steel Products Co., Detroit, Mich. Edwards Mfg. Co., The, Cincinnati, O. Kellogg Met. Cell. Mfg. Co., S., Pittsburgh, Pa. Volgtmann & Co., Chicago, Ill.</p> <p>Metal Work. (Stamped and Embossed Hotel Chucks, Key Tags, etc.) American Railway Supply Co., New York, N. Y.</p> <p>Metal-Working Machinery. Berth & Co., Cambridge City, Ind. Bliss Co., E. W., Brooklyn, N. Y. Lester & Co., Chas., Brooklyn, N. Y. Long & Allistatter Co., Hamilton, O. Stoll Co., D. H., Buffalo, N. Y.</p> <p>Micrometers, Calipers, etc. Starrett Co., L. S., Athol, Mass.</p> <p>Milk Filters. (Liquor, Milk, etc.) International Filter Co., Chicago, Ill.</p> <p>Mill Engineers and Architects. Lockwood, Greene & Co., Boston, Mass. Srinne, J. E., Greenville, S. C.</p> <p>Mill Supplies. Bailey-Lebby Co., Charleston, S. C. Cameron & Barkley Co., Charleston, S. C. Gainesville Iron Works, Gainesville, Ga. Lindsay, J. L., Inc., Richmond, Va. Lombard Iron Works, Augusta, Ga. Manning, Maxwell & Moore, Inc., New York, N. Y. Mecklenburg Iron Works, Charlotte, N. C. Nordyke & Marmon Co., Indianapolis, Ind. Reuter-Jones Mfg. Co., St. Louis, Mo. Salem Foundry & Machine Works, Salem, Va. Smith-Courtney Co., Richmond, Va. Starr Co., B. F., Baltimore, Md. Stratton & Bragg Co., Petersburg, Va. Wolf Co., Chambersburg, Pa.</p> <p>Mining Machinery. (Gold, Copper, Plate, etc.) Bartlett & Snow Co., C. O., Cleveland, O. Jeffrey Mfg. Co., Columbus, O. McLennan-Stone Mach. Co., Hollidaysburg, Pa. Mecklenburg Iron Works, Charlotte, N. C. Raymond Bros. Impact Pulv. Co., Chicago, Ill.</p> <p>Mixer Machinery. Smith Co., T. L., Atlanta, Ga.</p> <p>Mixing Machinery. Dunning, W. D., Syracuse, N. Y. Lynn-Superior Co., The, Cincinnati, O.</p> <p>Mortar Colors. Chattanooga Paint Co., Chattanooga, Tenn.</p> <p>Motor Trucks. International Motor Co., New York, N. Y. Schacht Motor Car Co., Cincinnati, Ohio.</p> <p>Mouldings, Casings, etc. Massee & Felton Lumber Co., Macon, Ga.</p> <p>Nails. (Cut.) Brooke Iron Co., E. & G., Birdsboro, Pa. La Belle Iron Works, Steubenville, O.</p> <p>Nails and Spikes. American Steel & Wire Co., Chicago, Ill. Republic Iron & Steel Co., Youngstown, O. Youngstown Sheet & Tube Co., Youngstown, O.</p> <p>Nitre Pots, Eggs. Caroline Foundry Co., Baltimore, Md. Pratt Engineering & Mach. Co., Atlanta, Ga.</p> <p>Nuts. [See Bolts, Nuts, Rivets, etc.]</p>	<p>Nut Locks. (Railroad.) Universal Nut & Bolt Lock Co., Newport, Ky.</p> <p>Office Furniture. Rose & Thompson, Baltimore, Md.</p> <p>Oil. (Lubricating, etc.) Albany Lubricating Co., New York, N. Y. Borne-Scrymser Co., New York, N. Y. Galena Signal Oil Co., Franklin, Pa. Gulf Refining Co., Pittsburgh, Pa. Robinson & Son Co., Wm. C., Baltimore, Md. Texas Co., The, New York, N. Y.</p> <p>Oil-Burning Appliances. Liquifuel Eng. & Const. Co., Pittsburgh, Pa. Petroleum Iron Works Co., Sharon, Pa.</p> <p>Oil Cans. Wall Mfg. Supply Co., P., Allegheny, Pa.</p> <p>Oil Engines. [See Engines (Oil).]</p> <p>Oil Separators. Stewart Heater Co., Buffalo, N. Y.</p> <p>Oil Stones. Carborundum Co., Niagara Falls, N. Y. Norton Co., Worcester, Mass.</p> <p>Oil-Well Machinery. Keystone Steam Well Mach. Co., Beaver Falls, Pa. Williams Bros., Ithaca, N. Y.</p> <p>Ornamental Iron Work. Belmont Iron Works, Philadelphia, Pa. Boiles Iron & Wire Works, J. E., Detroit, Mich. Chattanooga Iron & Wire Wks., Chat'n'ga, Tenn. Chesapeake Iron Works, Baltimore, Md. Dow Wire and Iron Works, Louisville, Ky. Ohio Elevator & Machine Co., The, Columbus, O. Roanoke Iron Works, Inc., Roanoke, Va. Schreiber & Sons Co., The, Cincinnati, O. Snead Architectural Iron Works, Louisville, Ky. Southern Wire & Iron Mfg. Co., Dallas, Tex.</p> <p>Oxy-Acetylene Welding and Cutting Outfit and Supplies. International Oxygen Co., New York, N. Y.</p> <p>Oxygen. International Oxygen Co., New York, N. Y.</p> <p>Packing. (Asbestos, Metallic, Rubber, Leather, etc.) Jenkins Bros., New York, N. Y. Johns-Manville Co., H. W., New York, N. Y. N. J. Car Spring & Rubber Co., Jersey City, N. J. Power Specialty Co., New York, N. Y.</p> <p>Paint. (Bridge.) Dixon Crucible Co., Jos., Jersey City, N. J. National Roofing Co., Tonawanda, N. Y.</p> <p>Paints. (Cold Water.) Chickamauga Cement Co., Chattanooga, Tenn.</p> <p>Paint. (Metal Preservative.) National Roofing Co., Tonawanda, N. Y.</p> <p>Paint. (Roofing, Building, etc.) Armstrong Mfg. Co., The, Richmond, Va. Cameron & Barkley Co., Charleston, S. C. Chattanooga Paint Co., Chattanooga, Tenn. Dixon Crucible Co., Jos., Jersey City, N. J. National Roofing Co., Tonawanda, N. Y. Thompson & Co., Pittsburgh, Pa.</p> <p>Painting. (Contractors for Bridges, Buildings, etc.) Dinaco & Bro., A., Pittsburgh, Pa.</p> <p>Paint-Making Machinery. Lyon Superior Co., The, Cincinnati, O.</p> <p>Paper. (Roofing, Building, Sheeting, etc.) Armstrong Mfg. Co., Richmond, Va. Bartlett Mfg. Co., Philadelphia, Pa. Berlin Mills Co., Portland, Maine. Cameron & Barkley Co., Charleston, S. C.</p> <p>Paper. (Wrapping.) Berlin Mills Co., Portland, Maine.</p> <p>Patent Attorneys. Brown, Eugene C., Washington, D. C. Chandler & Chandler, Washington, D. C. Coleman, Watson E., Washington, D. C. Evans & Co., Victor J., Washington, D. C. Fitzgerald & Co., W. T., Washington, D. C. Hamlin, Geo. R., Washington, D. C. Jones, Bennett S., Washington, D. C.</p> <p>Patterns. Roanoke Iron Works, Inc., Roanoke, Va.</p> <p>Pavement Filler. Bartlett Mfg. Co., Philadelphia, Pa.</p> <p>Paving. (Contractors for Creosoted Wood Block.) Creosoted Wood Block Pav. Co., New Orleans, La.</p> <p>Paving Contractors. Consolidated Engineering Co., Baltimore, Md. Dalarway Paving Co., New York, N. Y.</p> <p>Paving Blocks. (Wood-Creosote.) Gulfport Creosoting Co., Gulfport, Miss. Southern Wood Preserving Co., Atlanta, Ga. U. S. Wood Preserving Co., New York, N. Y.</p> <p>Paving Brick. Carlyle Paving Brick Co., Portsmouth, O. Copeland-Ingalls Shale Brick Co., Birm'gh'm, Ala.</p> <p>Paving Machines. (Bituminous Materials.) Smith Co., T. L., Atlanta, Ga.</p> <p>Paving Material. Dolarway Paving Co., New York, N. Y.</p> <p>Perforated Metal. Caldwell & Son, H. W., Chicago, Ill. Cross Engineering Co., Carbondale, Pa. Erdle Perforating Co., Rochester, N. Y. Hendrick Mfg. Co., The, Carbondale, Pa. Mundt & Sons, Charles, Jersey City, N. J.</p> <p>Petroleum Refiners. Gulf Refining Co., Pittsburgh, Pa. Standard Oil Co., Inc., Louisville, Ky. Standard Oil Co., Inc., Newark, N. J.</p> <p>Phosphate Machinery. Alaing Engineering Co., J. R., New York, N. Y. American Process Co., New York, N. Y. Bailey-Lebby Co., The, Charleston, S. C. Cameron & Barkley Co., Charleston, S. C. Link-Belt Co., Nicetown (Philadelphia), Pa. McLennan-Stone Mach. Co., Hollidaysburg, Pa. Pratt Engineering & Mach. Co., Atlanta, Ga. Raymond Bros. Impact Pulv. Co., Chicago, Ill. Talk & Murdock Iron Works, Charleston, S. C. Walker & Elliott, Wilmington, Del.</p> <p>Phosphor-Bronze. (Wire Rods, Sheets.) Phosphor-Bronze Smelting Co., Philadelphia, Pa.</p> <p>Photo-Engravers. Baltimore-Maryland Engr. Co., Baltimore, Md.</p>	<p>Pig Iron. Alabama Con. Coal & Iron Co., Birmingham, Ala. La Belle Iron Works, Steubenville, O. Republic Iron & Steel Co., Youngstown, O. Tennessee Coal, Iron & R. R. Co., B'm'gh'm, Ala.</p> <p>Pile Drivers. Vulcan Iron Works, Chicago, Ill.</p> <p>Piling. (Creosoted.) American Creosote Works, New Orleans, La. Gulfport Creosoting Co., Gulfport, Miss. Intern'l Creosoting & Const. Co., Galveston, Tex. Southern Creosoting Co., Ltd., Biddell, La.</p> <p>Pillow Blocks. Caldwell Co., Inc., W. H., Louisville, Ky. Golden's Foundry & Machine Co., Columbus, Ga.</p> <p>Pipe. (Cast Iron.) American Cast Iron Pipe Co., Birmingham, Ala. American Pipe & Construction Co., Phila., Pa. Gilmorgan Pipe & Foundry Co., Lynchburg, Va. McWane Pipe Works, Lynchburg, Va. U. S. Cast Iron Pipe & Fdy. Co., New York, N. Y. Wood & Co., R. D., Philadelphia, Pa.</p> <p>Pipe. (Coll.) Columbus Iron Works Co., Columbus, Ga. Frick Co., The, Wyncboro, Pa. National Pipe Bending Co., New Haven, Conn. Whitlock Coll Pipe Co., Hartford, Conn. York Mfg. Co., York, Pa.</p> <p>Pipe. (Corrugated Culvert.) American Culvert Mfg. Co., Buechel, Ky. American Rolling Mill Co., Middletown, O. Canton Culvert Co., The, Canton, O. Dixie Culvert & Metal Co., Atlanta, Ga. Gallon Iron Works Co., Gallon, O. Harry Steel Co., O. K., St. Louis, Mo. Kentucky Culvert Mfg. Co., Buechel, Ky. North Carolina Metal Culv. Co., Greensboro, N. C. Virginia Metal Culvert Co., Roanoke, Va. Virginia Railway Supply Co., Norfolk, Va.</p> <p>Pipe. (Riveted.) Abendroth & Root Mfg. Co., Newburgh, N. Y. Keeler Co., E., Williamsport, Pa. Petroleum Iron Works Co., Sharon, Pa. Ruemmel-Dawley Mfg. Co., St. Louis, Mo.</p> <p>Pipe. (Spiral Riveted.) Abendroth & Root Mfg. Co., Newburgh, N. Y. American Spiral Pipe Works, Chicago, Ill.</p> <p>Pipe. (Wood.) Wyckoff & Son Co., A., Elmira, N. Y.</p> <p>Pipe. (Wrought.) La Belle Iron Works, Steubenville, O. National Tube Co., Pittsburgh, Pa. Youngstown Sheet & Tube Co., Youngstown, O.</p> <p>Pipe Bends. Columbus Iron Works Co., Columbus, Ga. Pittsburgh Valve Fdry. & Const. Co., Pitts-burgh, Pa. Whitlock Coll Pipe Co., Hartford, Conn.</p> <p>Pipe Covering. (Steam.) Johns-Manville Co., H. W., New York, N. Y. Southern Pipe Covering Co., Inc., Richmond, Va. Wyckoff & Son Co., A., Elmira, N. Y.</p> <p>Pipe Cutting and Threading Machinery. Saunders' Sons, D., Yonkers, N. Y. Williams Tool Co., Erie, Pa.</p> <p>Pipe Fittings. American Cast Iron Pipe Co., Birmingham, Ala. Columbus Iron Works Co., Columbus, Ga. Pittsburgh Valve Fdry. & Const. Co., Pitts-burgh, Pa. York Mfg. Co., York, Pa.</p> <p>Pipe Jointing. (Gas and Water Main.) Leadite Co., Inc., The, Philadelphia, Pa.</p> <p>Pipe Locator. Modern Iron Works, Quincy, Ill.</p> <p>Pipe Unions and Joints. Dart Mfg. Co., E. M., Providence, R. I. National Tube Co., Pittsburgh, Pa. Whitlock Coll Pipe Co., Hartford, Conn.</p> <p>Pipe Wrenches and Cutters. Saunders' Sons, D., Yonkers, N. Y.</p> <p>Piping System. (Design and Install.) Pittsburgh Valve Fdry. & Const. Co., Pitts-burgh, Pa.</p> <p>Pitch. Bartlett Mfg. Co., Philadelphia, Pa.</p> <p>Planers. (Metal.) Manning, Maxwell & Moore, Inc., New York, N. Y.</p> <p>Planing Mill Work. Massee & Felton Lumber Co., Macon, Ga.</p> <p>Plaster of Paris. King & Co., J. B., New York, N. Y.</p> <p>Plaster. Security Cement & Lime Co., Baltimore, Md.</p> <p>Plaster. (Asbestos Cement, Plaster of Paris.) King & Co., J. B., New York, N. Y.</p> <p>Plaster Boards. Hercules Plaster Board Co., Hampton, Va. King & Co., J. B., New York, N. Y.</p> <p>Plaster Machinery. Bartlett & Snow Co., C. O., Cleveland, O.</p> <p>Plates. Cincinnati Iron & Steel Co., Cincinnati, O. Wood Iron & Steel Co., Alan, Philadelphia, Pa.</p> <p>Pneumatic Tools. [See Tools—Pneumatic.]</p> <p>Poles. (Wood Creosoted.) American Creosote Wks., New Orleans, La.</p> <p>Polishing Machinery. (Wheels and Blocks.) Abrasive Material Co., Philadelphia, Pa. Carborundum Co., Niagara Falls, N. Y. Vitrified Wheel Co., Westfield, Mass.</p> <p>Power Transmission Machinery. Bailey-Lebby Co., Charleston, S. C. Brown Co., A. & F., New York, N. Y. Caldwell Co., Inc., W. H., Louisville, Ky. Caldwell & Son Co., H. W., Chicago, Ill. Crescon Co., Geo. V., Philadelphia, Pa. Erie Clutch & Pulley Co., Erie, Pa. Golden's Foundry & Machine Co., Columbus, O. Jeffrey Mfg. Co., Columbus, O. Jones & Laughlin Steel Co., Pittsburgh, Pa. Lane Mfg. Co., Montpelier, Vt. Lindsay, J. I., Inc., Richmond, Va. Link-Belt Co., Nicetown (Philadelphia), Pa. More Chain Co., Ithaca, N. Y. Nordyke & Marmon Co., Indianapolis, Ind. Poole Engineering & Machine Co., Baltimore, Md. Pride Machinery Co., S. M., Norfolk, Va. Reuter-Jones Mfg. Co., St. Louis, Mo. Ryersford Fdry. & Mch. Co., Ryersford, Pa. Schmidt's Sons Co., J. S., Macon, Ga. Wolf Co., The, Chambersburg, Pa. Wood's Sons Co., T. B., Chambersburg, Pa.</p>
--	--	---	---

CLASSIFIED INDEX OF ARTICLES ADVERTISED

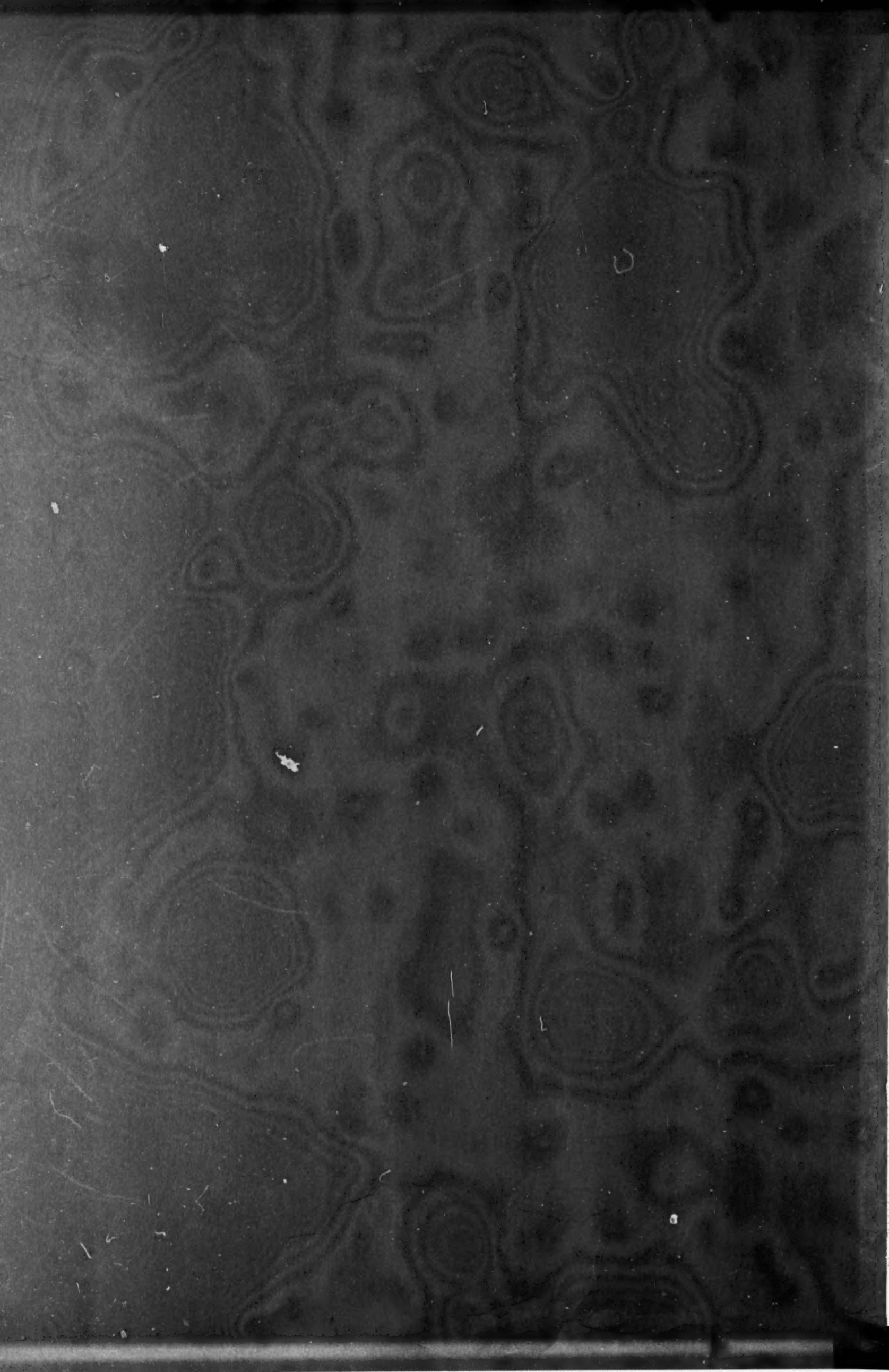
- Presses.** (Balling, Cottonseed Oil, etc., Hydraulic and Power.)
Boomer & Boschert Press Co., Syracuse, N. Y.
Cardwell Machine Co., Richmond, Va.
Continental Oil Co., Birmingham, Ala.
Sinclair-Scott Co., Baltimore, Md.
- Presses.** (Sewer Pipe and Tile.)
Taplin-Rice-Clerkin Co., Akron, O.
- Presses.** (Stamping.)
Bliss Co., E. W., Brooklyn, N. Y.
Lefter & Co., Charles, Brooklyn, N. Y.
Stoll Co., D. H., Buffalo, N. Y.
- Preventive for Sap Stain.**
Church & Dwight Co., New York, N. Y.
- Printers.** (Book, Catalog, Job, etc.)
Fleet-McGinley Co., Baltimore, Md.
- Promoters.**
Assets Realization Co., Chicago, Ill.
Electric Bond & Share Co., New York, N. Y.
- Protector Steel.** (Concrete Curb, Steps, etc.)
Steel Protected Concrete Co., Philadelphia, Pa.
- Pulleys.** (Friction Clutch.)
Brown Co., A. & F., New York, N. Y.
Caldwell Co., Inc., W. E., Louisville, Ky.
Caldwell & Son Co., H. W., Chicago, Ill.
Cresson Co., Geo. V., Philadelphia, Pa.
Pool Engineering & Machine Co., Baltimore, Md.
Wood's Sons Co., T. B., Chambersburg, Pa.
- STEEL SPLITS.**
American Pulley Co., Philadelphia, Pa.
- WOOD SPLITS.**
Caldwell Co., Inc., W. E., Louisville, Ky.
Caldwell & Son Co., H. W., Chicago, Ill.
Lane Mfg. Co., Saginaw, Mich.
Saginaw Mfg. Co., Saginaw, Mich.
Salem Foundry & Machine Works, Salem, Va.
- Pulleys, Shafting and Hangers.**
Caldwell Co., Inc., W. E., Louisville, Ky.
Caldwell & Son Co., H. W., Chicago, Ill.
Cresson Co., Geo. V., Philadelphia, Pa.
Golden's Foundry & Machine Co., Columbus, Ga.
Jeffrey Mfg. Co., Columbus, O.
Jones & Laughlin Steel Co., Pittsburgh, Pa.
Lane Mfg. Co., Montpelier, Vt.
Link-Belt Co., Nictown (Philadelphia), Pa.
Nordyke & Macdonald Co., Indianapolis, Ind.
Pool Engineering & Machine Co., Baltimore, Md.
Ryersford Fdry. & Mch. Co., Ryersford, Pa.
Standard Roller Bearing Co., Philadelphia, Pa.
Wood's Sons Co., T. B., Chambersburg, Pa.
- Pumps.** (Air Lift.)
Harris Air Pump Co., Indianapolis, Ind.
- Pumps.** (Boiler Feed.)
Alther Pump & Condenser Co., New York, N. Y.
Cameron Steam Pump Wks., A. S., New York, N. Y.
Dean Bros. Steam Pump Wks., Indianapolis, Ind.
Goulds Mfg. Co., Seneca Falls, N. Y.
Jeansville Iron Works Co., Hazleton, Pa.
McGowan Co., John H., Cincinnati, O.
Moffatt Machinery Mfg. Co., Charlotte, N. C.
Murray Iron Works Co., Burlington, Ia.
Myers & Bros., F. E., Ashland, O.
Union Steam Pump Co., Battle Creek, Mich.
- Pumps.** (Centrifugal.)
Alther Pump & Condenser Co., New York, N. Y.
Buffalo Steam Pump Co., Buffalo, N. Y.
De Laval Steam Turbine Co., Trenton, N. J.
Erie Pump & Engine Works, Erie, Pa.
Goulds Mfg. Co., Seneca Falls, N. Y.
Haydon Pump Co., Quincy, Ill.
Jeansville Iron Works Co., Hazleton, Pa.
Morris Machine Works, Baldwinville, N. Y.
More Engine Co., Lansing, Mich.
Wood & Co., R. D., Philadelphia, Pa.
Worthington, H. R., Harrison, N. J.
- Pumps.** (Deep Well.)
Hill-Tripp Pump Co., Anderson, Ind.
Keystone Pump & Well Eng. Co., Beaver Falls, Pa.
McGowan Co., John H., Cincinnati, O.
- Pumps.** (Hydraulic.)
Buffalo Steam Pump Co., Buffalo, N. Y.
Cardwell Machine Co., Richmond, Va.
Dean Bros. Steam Pump Wks., Indianapolis, Ind.
Erie Pump & Engine Works, Erie, Pa.
Goulds Mfg. Co., Seneca Falls, N. Y.
- Pumps.** (Lift and Force.)
Goulds Mfg. Co., Seneca Falls, N. Y.
Ingersoll-Rand Co., New York, N. Y.
- Pumps.** (Odorous and Excavating.)
Goulds Mfg. Co., Seneca Falls, N. Y.
- Pumps.** (Pneumatic.)
Harris Air Pump Co., Indianapolis, Ind.
Ingersoll-Rand Co., New York, N. Y.
- Pumps.** (Rotary.)
Goulds Mfg. Co., Seneca Falls, N. Y.
- Pumps.** (Steam.)
Blake & Knowles Steam Pump Works, East Cambridge, Mass.
Blagelie Mfg. Co., Du Quoin, Ill.
Buffalo Steam Pump Co., Buffalo, N. Y.
Cameron Steam Pump Wks., A. S., New York, N. Y.
Cameron & Barkley Co., Charleston, S. C.
Cook Well Co., The, St. Louis, Mo.
Dean Bros. Steam Pump Wks., Indianapolis, Ind.
Deane Steam Pump Co., Holyoke, Mass.
Gardner Governor Co., Quincy, Ill.
Goulds Mfg. Co., Seneca Falls, N. Y.
Keystone Pump & Well Eng. Co., Beaver Falls, Pa.
McGowan Co., John H., Cincinnati, O.
Murray Iron Works Co., Burlington, Ia.
Price Machinery Co., S. M., Norfolk, Va.
Sydnor Pump & Well Co., Richmond, Va.
Union Steam Pump Co., Battle Creek, Mich.
Worthington, H. R., Harrison, N. J.
- Pumps.** (Trench.)
Bond Co., Harold L., Boston, Mass.
C. H. & E. Mfg. Co., Milwaukee, Wis.
Goulds Mfg. Co., Seneca Falls, N. Y.
- Pumps.** (Vacuum.)
Alther Pump & Condenser Co., New York, N. Y.
Dean Bros. Steam Pump Wks., Indianapolis, Ind.
Goulds Mfg. Co., Seneca Falls, N. Y.
Smith Co., T. L., Atlanta, Ga.
Union Steam Pump Co., Battle Creek, Mich.
- Pumps.** (Water-works.)
McGowan Co., John H., Cincinnati, O.
- Pumping Machinery.**
Allis-Chalmers Co., Milwaukee, Wis.
Blagelie Mfg. Co., Du Quoin, Ill.
Bond Co., Harold L., Boston, Mass.
Cameron Steam Pump Wks., A. S., New York, N. Y.
Cook Well Co., The, St. Louis, Mo.
Dean Bros. Steam Pump Wks., Indianapolis, Ind.
Deane Steam Pump Co., Holyoke, Mass.
Deming Co., Salem, O.
Erie Pump & Engine Works, Erie, Pa.
Fairbanks, Morse & Co., Chicago, Ill.
Goulds Mfg. Co., Seneca Falls, N. Y.
- Harris Air Pump Co., Indianapolis, Ind.**
Hill-Tripp Pump Co., Anderson, Ind.
Keystone Pump & Well Eng. Co., Beaver Falls, Pa.
McGowan Co., John H., Cincinnati, O.
Moffatt Machinery Mfg. Co., Charlotte, N. C.
Morris Machine Works, Baldwinville, N. Y.
Myers & Bros., F. E., Ashland, O.
Norborn Engineering Co., Philadelphia, Pa.
Sydnor Pump & Well Co., Richmond, Va.
Union Steam Pump Co., Battle Creek, Mich.
Wood & Co., R. D., Philadelphia, Pa.
Worthington, H. R., Harrison, N. J.
- Punching and Shearing Machinery.**
Bertsch & Co., Cambridge City, Ind.
Bliss Co., E. W., Brooklyn, N. Y.
Long & Allstatter Co., Hamilton, O.
- Pyrites Burners.**
Caroline Foundry Co., Baltimore, Md.
Fratt Engineering & Mach. Co., Atlanta, Ga.
- Quarrying and Stonecutting Machinery.**
Ingersoll-Rand Co., New York, N. Y.
- Railroads.** (Agricultural and Industrial Opportunities.) [See Industrial, Agricultural and Commercial Opportunities.]
- Railroad Equipment and Supplies.** (New and Second-hand.)
American Frog & Switch Co., Hamilton, O.
American Locomotive Co., New York, N. Y.
American Valve & Meter Co., Cincinnati, O.
Baldwin Equipment & Supply Co., Chicago, Ill.
Birmingham Rail & Loco. Co., Birmingham, Ala.
Boston Iron & Metal Co., Baltimore, Md.
Cincinnati Frog & Switch Co., Cincinnati, O.
Foster Co., L. B., Pittsburgh, Pa.
Georgia Car & Locomotive Co., Atlanta, Ga.
Hoffman & Co., R. C., Baltimore, Md.
Hyman-Michaels Co., Chicago, Ill.
Indiana Steel & Iron Co., Pittsburgh, Pa.
Kilby Frog & Switch Co., Birmingham, Ala.
Maclear, J. H., Suffolk, Va.
Males Co., Cincinnati, O.
Manning, Maxwell & Moore, Inc., New York, N. Y.
Maryland Equipment & Supply Co., Baltimore, Md.
Mathes Iron & Metal Co., G., St. Louis, Mo.
May & Turner Co., Atlanta, Ga.
National Iron & Steel Co., Houston, Tex.
Newhall Eng. Co., Geo. M., Philadelphia, Pa.
Papin Co., R. K., St. Louis, Mo.
Pickett Co., Inc., H. W., Philadelphia, Pa.
Q & C Co., New York, N. Y.
Read Co., Howard W., Philadelphia, Pa.
Robinson & Orr, Pittsburgh, Pa.
Sherwood, E. C., New York, N. Y.
Smith-Courtney Co., Richmond, Va.
Southern Iron & Steel Co., Atlanta, Ga.
Southern Supply Co., Norfolk, Va.
Steel Rail Supply Co., The, New York, N. Y.
United States Rail Co., Cumberland, Md.
Vulcan Iron Works, Wilkes-Barre, Pa.
Weir Frog Co., Cincinnati, O.
Wilson & Co., E. H., Philadelphia, Pa.
Zeinicker Supply Co., Walter A., St. Louis, Mo.
- Railroad Frogs and Switches.**
American Frog & Switch Co., Hamilton, O.
Cincinnati Frog & Switch Co., Cincinnati, O.
Kilby Frog & Switch Co., Birmingham, Ala.
Mathes Iron & Metal Co., G., St. Louis, Mo.
May & Turner Co., Atlanta, Ga.
Robinson & Orr, Pittsburgh, Pa.
Sweet's Steel Co., Williamsport, Pa.
Weir Frog Co., Cincinnati, O.
- Railroad Tie.** (Reinforced Concrete.)
Universal Concrete Tie Co., New Orleans, La.
- Rails.** (Steel.)
Carnegie Steel Co., Pittsburgh, Pa.
Foster Co., L. B., Pittsburgh, Pa.
Franks, J. E., Atlanta, Ga.
Hoffman & Co., R. C., Baltimore, Md.
Hyde Bros., Co., Chicago, Ill.
Hyman-Michaels Co., Chicago, Ill.
Indiana Steel & Iron Co., Pittsburgh, Pa.
Levi & Co., Henry, Philadelphia, Pa.
Maclear, J. H., Suffolk, Va.
Mathes Iron & Metal Co., G., St. Louis, Mo.
May & Turner Co., Atlanta, Ga.
National Iron & Steel Co., Houston, Tex.
Newhall Eng. Co., Geo. M., Philadelphia, Pa.
Ohio Iron & Metal Co., Chicago, Ill.
Papin Co., R. K., St. Louis, Mo.
Republic Iron & Steel Co., Youngstown, O.
Robinson & Orr, Pittsburgh, Pa.
Sherwood, E. C., New York, N. Y.
Southern Iron & Equipment Co., Atlanta, Ga.
Steel Rail Supply Co., The, New York, N. Y.
Sweet's Steel Co., Williamsport, Pa.
Tennessee Coal, Iron & R. R. Co., B'gh'm, Ala.
United States Rail Co., Cumberland, Md.
Wilson & Co., E. H., Philadelphia, Pa.
Zeinicker Supply Co., Walter A., St. Louis, Mo.
- Rail Braces, Crossings, etc.** [See R. R. Frogs and Switches.]
- Railing Grilles.** (Brass.)
Newman Mfg. Co., Cincinnati, Ohio.
- Rail Joints.**
Q & C Co., New York, N. Y.
- Railways.** (Industrial.)
Chase Fdry. & Mfg. Co., Columbus, O.
Hunt Co., C. W., West New Brighton, N. Y.
Link-Belt Co., Nictown (Philadelphia), Pa.
- Rams.** (Hydraulic.) [See Hydraulic Rams.]
- Reamers.**
Morse Twist Drill & Mch. Co., New Bedford, Mass.
- Reinforcing Bars.** (For Concrete Constr.)
Carnegie Steel Co., Pittsburgh, Pa.
Concrete Steel Co., New York, N. Y.
Concrete Steel Engineering Co., New York, N. Y.
Franklin Steel Co., Franklin, Pa.
- Riveters.** (Pneumatic.)
Chicago Pneumatic Tool Co., Chicago, Ill.
Independent Pneumatic Tool Co., Chicago, Ill.
Ingersoll-Rand Co., New York, N. Y.
- Road Machinery.**
Austin-Western Co., Ltd., The, Chicago, Ill.
Buffalo Steam Roller Co., Buffalo, N. Y.
Case Threshing Mch. Co., Inc., J. I., Racine, Wis.
Cressy, Walter, Gloucester, Mass.
Dixton Iron Works Co., Galen, O.
Glitz Road Machine Co., Minneapolis, Minn.
Iroquois Iron Works, Buffalo, N. Y.
Kelly Springfield Road Roller Co., Springfield, O.
Syracuse Chilled Plow Co., Syracuse, N. Y.
Universal Road Mch. Co., Kingston, N. Y.
Western Wheeled Scraper Co., Aurora, Ill.
- Roadmaking Materials.**
Standard Oil Co., Inc., Louisville, Ky.
Standard Oil Co., Inc., Newark, N. J.
Texas Co., The, New York, N. Y.
- Road Roller.** (Steam.)
Austin-Western Co., Ltd., The, Chicago, Ill.
Buffalo Steam Roller Co., Buffalo, N. Y.
Case Threshing Mch. Co., Inc., J. I., Racine, Wis.
Iroquois Iron Works, Buffalo, N. Y.
Kelly Springfield Road Roller Co., Springfield, O.
Universal Road Mch. Co., Kingston, N. Y.
- Road Oil.**
Gulf Refining Co., Pittsburgh, Pa.
Standard Oil Co., Inc., Louisville, Ky.
Standard Oil Co., Inc., Newark, N. J.
Texas Co., The, New York, N. Y.
- Road Plows.**
Case Threshing Mch. Co., Inc., J. I., Racine, Wis.
Syracuse Chilled Plow Co., Syracuse, N. Y.
- Road Preservatives.**
Gulf Refining Co., Pittsburgh, Pa.
Standard Oil Co., Inc., Louisville, Ky.
Standard Oil Co., Inc., Newark, N. J.
Texas Co., The, New York, N. Y.
- Road Sprayers.** (Oil, Tar, Asphalt.)
Cressy, Walter, Gloucester, Mass.
- Rock Crushers.** [See Crushers, Rock.]
- Roll Grinding and Corrugating.** (Flour Mills.)
Veatch & Co., L. R., Louisville, Ky.
- Rolls.** (Bending and Straightening.)
Bertsch & Co., Cambridge City, Ind.
- Roofers' and Tinners' Supplies.**
Merchant & Evans Co., Philadelphia, Pa.
- Roofing Caps.**
Robertson Steel & Iron Co., W. F., Cincinnati, O.
- Roofing.** (Contractors for Laying.)
Dinlaco & Bro., A., Pittsburgh, Pa.
- Roofing.** (Felt, Tar, Asbestos, Asphalt, Tin, etc.)
Allen, Herbert F. L., Washington, D. C.
American Sheet & Tin Plate Co., Pittsburgh, Pa.
Armstrong Mfg. Co., Richmond, Va.
Asphalt Ready Roofing Co., New York, N. Y.
Barber Asphalt Paving Co., Philadelphia, Pa.
Barrett Mfg. Co., Philadelphia, Pa.
Cameron & Barkley Co., Charleston, S. C.
Cincinnati Sheet Metal & Rfg. Co., Cincinnati, O.
Johns-Manville Co., H. W., New York, N. Y.
National Roofing Co., Tonawanda, N. Y.
- Roofing.** (Metal Shingles.) [See Shingles, Metal.]
Cincinnati Sheet Metal & Rfg. Co., Cincinnati, O.
Cortright Metal Roofing Co., Philadelphia, Pa.
Edwards Mfg. Co., The, Cincinnati, O.
Milwaukee Corrugating Co., Milwaukee, Wis.
Moersch-Edwards Corrugating Co., Covington, Ky.
- Roofing.** (Slate.)
East Bangor Consol. Slate Co., East Bangor, Pa.
Genuine Bangor Slate Co., Easton, Pa.
Hower, J. K., Slatings, Pa.
Johnson, E. J., New York, N. Y.
Reynolds Asphalt Shingle Co., H. M., Grand Rapids, Mich.
- Roofing Tile.**
National Roofing Tile Co., Lima, O.
- Roofing and Siding.** (Metal.)
American Rolling Mill Co., Middletown, O.
American Sheet & Tin Plate Co., Pittsburgh, Pa.
Cameron & Barkley Co., Charleston, S. C.
Cincinnati Sheet Metal & Rfg. Co., Cincinnati, O.
Cortright Metal Roofing Co., Philadelphia, Pa.
Edwards Mfg. Co., The, Cincinnati, O.
Hyndman Roofing Co., Cincinnati, O.
Milwaukee Corrugating Co., Milwaukee, Wis.
Moersch-Edwards Corrugating Co., Covington, Ky.
New Orleans Rfg. & Metal Wks., New Orleans, La.
Tennessee Metal Culvert Co., Nashville, Tenn.
Youngstown Sheet & Tube Co., Youngstown, O.
- Rope.**
American Mfg. Co., New York, N. Y.
Broderick & Bascom Rope Co., St. Louis, Mo.
Columbian Rope Co., Auburn, N. Y.
International Cotton Mills Corp., New York, N. Y.
Plymouth Cordage Co., North Plymouth, Mass.
- Rope.** (Transmission and Hoisting.)
American Mfg. Co., New York, N. Y.
American Steel & Wire Co., Chicago, Ill.
Broderick & Bascom Rope Co., St. Louis, Mo.
Caldwell Co., Inc., W. E., Louisville, Ky.
Columbian Rope Co., Auburn, N. Y.
Hunt Co., C. W., West New Brighton, N. Y.
Plymouth Cordage Co., North Plymouth, Mass.
Wood's Sons Co., T. B., Chambersburg, Pa.
- Rope Drives.**
Brown Co., A. & F., New York, N. Y.
Caldwell Co., Inc., W. E., Louisville, Ky.
Caldwell & Son, H. W., Chicago, Ill.
Cresson Co., Geo. V., Philadelphia, Pa.
Jones & Laughlin Steel Co., Pittsburgh, Pa.
Wood's Sons Co., T. B., Chambersburg, Pa.
- Rope Machinery.**
Haskell-Dawes Machine Co., Boston, Mass.
- Rubber Goods.**
Eureka Fire Hose Mfg. Co., New York, N. Y.
New Jersey Car Spg. & Rub. Co., Jersey City, N. J.
- Rules.** (Steel.)
Lufkin Rule Co., Saginaw, Mich.
Starrett Co., L. S., Athol, Mass.
- Sales and Vaults.**
York Safe & Lock Co., York, Pa.
- Sand.**
Arundel Sand & Gravel Co., Baltimore, Md.
Carter, L. A., New Orleans, La.
Kirkpatrick Sand & Cem. Co., Birmingham, Ala.
Lathrop & Co., C. P., Richmond, Va.
- Sand Rammers.**
Chicago Pneumatic Tool Co., Chicago, Ill.
- Sap Stain Preventive.**
Church & Dwight Co., New York, N. Y.
- Sash Chain.**
Niagara Falls Metal Stamping Works, Niagara Falls, N. Y.
- Saws.**
Gerlach Co., A. & F., Cleveland, O.
Huthier Bros. Saw Mfg. Co., Rochester, N. Y.
Smith Machine Co., H. B., Smithville, N. J.
Sydnor Pump & Well Co., Richmond, Va.
- Saws.** (Band.)
Smith Machine Co., H. B., Smithville, N. J.
- Saws.** (Hack.)
Starrett Co., L. S., Athol, Mass.
- Sawmill Dogs.**
Knight Manufacturing Co., Canton, Ohio.
Soule Steam Feed Works, Meridian, Miss.
- Sawmills.**
Gainesville Iron Works, Gainesville, Ga.
Gibbes Machinery Co., Columbia, S. C.
Lane Mfg. Co., Montpelier, Vt.
- Sawmill Machinery.**
Baldwin-Lebby Co., Charleston, S. C.
Cameron & Barkley Co., Charleston, S. C.
Chase Turbine Mfg. Co., Orange, Mass.
Knight Manufacturing Co., Canton, Ohio.
Lane Mfg. Co., Montpelier, Vt.
Mecklenburg Iron Works, Charlotte, N. C.
Price Mch. Co., S. M., Norfolk, Va.
Schofield's Sons Co., J. S., Macon, Ga.
Southern Engine & Boiler Works, Jackson, Tenn.
Sydnor Pump & Well Co., Richmond, Va.
Union Iron Works Co., Selma, Ala.
- Saw Rigs.** (Portable.)
C. H. & E. Mfg. Co., Milwaukee, Wis.
- Saw Sharpeners.**
Abrasive Material Co., Philadelphia, Pa.
Carborundum Co., Niagara Falls, N. Y.
Norton Co., Worcester, Mass.
Vitrified Wheel Co., Westfield, Mass.
- Saw Sharpeners and Files.** (Cotton Gln.)
Carver Cotton Gln Co., East Bridgewater, Mass.
- Scales.**
Howe Scale Co., New York, N. Y.
Standard Scale & Supply Co., Pittsburgh, Pa.
- Scrap Iron and Metals.**
Kandler & Co., H., Bowling Green, Ohio.
- Screening Apparatus.**
Walker & Elliott, Wilmington, Del.
- Screens.** (Fly, Window and Door.)
Cincinnati Mfg. Co., Cincinnati, O.
New Jersey Wire Cloth Co., Trenton, N. J.
- Screens.** (Mining.)
Cresson Co., Geo. V., Philadelphia, Pa.
Cross Engineering Co., Carbondale, Pa.
Erdle Perforating Co., Rochester, N. Y.
Hendrick Mfg. Co., Carbondale, Pa.
Jeffrey Mfg. Co., Columbus, O.
Mundt & Sons, Charles, Jersey City, N. J.
McLanahan-Stone Mach. Co., Hollidaysburg, Pa.
New Jersey Wire Cloth Co., Trenton, N. J.
Taplin-Rice-Clerkin Co., Akron, O.
- Searchlights.**
Ft. Wayne Electric Works, Ft. Wayne, Ind.
- Separators.** (Dust.)
Buffalo Forge Co., Buffalo, N. Y.
Raymond Bros. Impact Pulv. Co., Chicago, Ill.
- Sewer Pipe Machinery.**
Taplin-Rice-Clerkin Co., Akron, O.
- Sewer Pipe.** (Vitrified.)
Bibb Sewer Pipe Co., Macon, Ga.
Cannelton Sewer Pipe Co., Cannelton, Ind.
Pittsburgh Buffalo Co., Pittsburgh, Pa.
Pomona Terra-Cotta Co., Pomona, N. C.
Stevens Sons Co., H., Macon, Ga.
- Shafting.** (Polished Steel.)
Field & Co., Inc., Philadelphia, Pa.
Jones & Laughlin Steel Co., Pittsburgh, Pa.
Republic Iron & Steel Co., Youngstown, O.
- Shafting.** (See Pulleys, Shafting and Hangers.)
- Shapers.**
Steppe Shaper Co., John, Cincinnati, O.
- Sharpening Stones.**
Norton Co., Worcester, Mass.
Vitrified Wheel Co., Westfield, Mass.
- Shears.** (Metal.)
Bertsch & Co., Cambridge City, Ind.
Stoll Co., D. H., Buffalo, N. Y.
- Sheet Brass and Copper.**
Hussey & Co., C. G., Pittsburgh, Pa.
McKenna Bros. Brass Co., Pittsburgh, Pa.
Merchant & Evans Co., Philadelphia, Pa.
- Sheet Metal Working Machinery.**
Bertsch & Co., Cambridge City, Ind.
Bliss Co., E. W., Brooklyn, N. Y.
- Sheet Steel and Iron.**
American Rolling Mill Co., Middletown, O.
American Sheet & Tin Plate Co., Pittsburgh, Pa.
Cincinnati Iron & Steel Co., Cincinnati, O.
Le Belle Iron Works, Steubenville, O.
Republic Iron & Steel Co., Youngstown, O.
Tennessee Coal, Iron & R. R. Co., B'gh'm, Ala.
Wood Iron & Steel Co., Alan, Philadelphia, Pa.
Youngstown Sheet & Tube Co., The, Youngstown, O.
- Shingles.** (Asphalt, Slate.)
Reynolds Asphalt Shingle Co., H. M., Grand Rapids, Mich.
- Shingles.** (Metal.)
Burris & Co., John T., Anderson, S. C.
Chattanooga Rfg. & Fdy. Co., Chattanooga, Tenn.
Cincinnati Sheet Metal & Rfg. Co., Cincinnati, O.
Cortright Metal Roofing Co., Philadelphia, Pa.
Edwards Mfg. Co., Cincinnati, O.
Hyndman Roofing Co., Cincinnati, O.
Milwaukee Corrugating Co., Milwaukee, Wis.
Moersch-Edwards Corrugating Co., Covington, Ky.
- Shredders.** (Bark, Chip, etc.)
Williams Pat. Crush. & Pul. Co., The, Chicago, Ill.
- Shutters.** (Iron.)
Bolles Iron & Wire Works, J. E., Detroit, Mich.
Cheapeake Iron Works, Baltimore, Md.
- Shutters.** (Steel Rolling.)
Kinnear Mfg. Co., Columbus, O.
- Shutters.** (Tin Clad.)
Victor Mfg. Co., Newburyport, Mass.
- Signs.** (Metal Lithographed.)
Southern Can Co., Baltimore, Md.
- Signs.** (Road, Street, Outdoor, Advt.)
Indestructible Sign Co., Columbus, O.
- Skylights and Cornices.**
Milwaukee Corrugating Co., Milwaukee, Wis.
New Orleans Rfg. & Metal Wks., New Orleans, La.
- Slate Roofing.** [See Roofing (Slate).]
- Slate.** (Structural, Sanitary, etc.)
East Bangor Consol. Slate Co., East Bangor, Pa.
Genuine Bangor Slate Co., Easton, Pa.
Hower, J. K., Slatings, Pa.
- Sluice Gates and Appliances.**
Coldwell-Wilcox Co., Newburgh, N. Y.
- Smokestacks.** (Iron and Steel.)
Chattanooga Boiler & Tank Co., Chat'n'ga, Tenn.
Keeler Co., E., Williamsport, Pa.
Lombard Iron Works, Augusta, Ga.
Petroleum Iron Works Co., Sharon, Pa.
Ruennell-Dawley Mfg. Co., St. Louis, Mo.
Schofield's Sons Co., J. S., Macon, Ga.
Virginia Bridge & Iron Co., Roanoke, Va.
- Smokestacks.** (Steel-Concrete.)
Weber Chimney Co., Chicago, Ill.

- Spikes. (Railroad.)**
Goffman & Co., R. C., Baltimore, Md.
- Spikes. [See Nails and Spikes.]**
- Sprayers. (Oil, Tar, Asphalt.)**
Greasy, Walter, Gloucester, Mass.
- Springs. (Machinery, Railway, Spiral.)**
American Steel & Wire Co., Chicago, Ill.
Gary Spring Works, New York, N. Y.
Raymond Mfg. Co., Ltd., Corry, Pa.
- Sprinklers. (Automatic.)**
General Fire Extinguisher Co., Providence, R. I.
- Sprinkler Systems. (Automatic.)**
General Fire Extinguisher Co., Providence, R. I.
- Stamp Mills.**
Mecklenburg Iron Works, Charlotte, N. C.
- Stamps. (Brass, Rubber.)**
Baltimore Office Supply Co., Baltimore, Md.
Bennett Rubber Stamp & Seal Co., Atlanta, Ga.
- Standpipes.**
Chattanooga Boiler & Tank Co., Chat'n'ga, Tenn.
Des Moines Bridge & Iron Co., Pittsburgh, Pa.
Hartley Boiler Works, Montgomery, Ala.
Keeler Co., E., Williamsport, Pa.
Petroleum Iron Works Co., Sharon, Pa.
Rummell-Dawley Mfg. Co., St. Louis, Mo.
- Stapling Machinery. (Fruit Package Basket, etc.)**
Saranac Machine Co., St. Joseph, Mich.
- Stationers. (Envelopes, Letter and Bill Heads, etc.)**
Young & Selden Co., Baltimore, Md.
- Steam Feeds.**
Sole Steam Feed Works, Meridian, Miss.
- Steam Fitters' Supplies.**
Saunders' Sons, D., Yonkers, N. Y.
- Steam Heating.**
Keeler Co., E., Williamsport, Pa.
Peck-Hammond Co., The, Cincinnati, O.
- Steamship Lines.**
Baltimore Steam Packet Co., Baltimore, Md.
Chesapeake Steamship Co., Baltimore, Md.
Merchant & Miners' Trans. Co., Baltimore, Md.
- Steam Separators.**
Nappes Mfg. Co., Springfield, O.
Lindstrom's Mach. Wks., John T., Allentown, Pa.
- Steam Shovel Chains.**
Standard Chain Co., Pittsburgh, Pa.
Weimer Chain & Iron Co., Lebanon, Pa.
- Steam Shovels. [See Excavating Machinery.]**
- Steam Specialties.**
Kennedy Valve Mfg. Co., Elmira, N. Y.
Pavell Co., Wm., Cincinnati, O.
- Steam Traps.**
Jenkins Bros., New York, N. Y.
Lindstrom's Mach. Wks., John T., Allentown, Pa.
Pratt & Cady Co., Hartford, Conn.
- Steel.**
American Rolling Mill Co., Middletown, O.
Dietrich Bros., Baltimore, Md.
Field & Co., Inc., Philadelphia, Pa.
Hoffman & Co., R. C., Baltimore, Md.
Jones & Laughlin Steel Co., Pittsburgh, Pa.
La Belle Iron Works, Steubenville, O.
Oliver Iron & Steel Co., Pittsburgh, Pa.
Republic Iron & Steel Co., Youngstown, O.
Tennessee Coal, Iron & R. R. Co., Birmingham, Ala.
Wood Iron & Steel Co., Alan, Philadelphia, Pa.
- Steel. (Tool.)**
Field & Co., Inc., Philadelphia, Pa.
Jeppson & Sons, Inc., Wm., St. Louis, Mo.
McKenna Bros. Brass Co., Pittsburgh, Pa.
- Steel. (Vanadium.)**
Carnegie Steel Co., Pittsburgh, Pa.
- Steel Buildings. (Designers, Builders.)**
Amer. Bridge Co. of New York, New York, N. Y.
Champion Bridge Co., Wilmington, Ohio.
Chesapeake Iron Works, Baltimore, Md.
Farris Bridge Co., Pittsburgh, Pa.
Phoenix Iron Co., Philadelphia, Pa.
Roanoke Bridge Co., Roanoke, Va.
Schreiber & Sons Co., The L., Cincinnati, O.
Snead Architectural Iron Works, Louisville, Ky.
Virginia Bridge & Iron Co., Roanoke, Va.
- Steel Casting.**
Acme Steel & Malleable Iron Wks., Buffalo, N. Y.
Crescent Steel Castings Co., Lansdown, Pa.
Goffman & Co., R. C., Baltimore, Md.
Reliance Steel Casting Co., Pittsburgh, Pa.
- Steel Plate Work.**
Osney-Hedges Co., Chattanooga, Tenn.
Chattanooga Boiler & Tank Co., Chat'n'ga, Tenn.
Goffman & Co., R. C., Baltimore, Md.
Phoenix Iron Co., Philadelphia, Pa.
Republic Iron & Steel Co., Youngstown, O.
Richmond Engr. & Mfg. Co., Richmond, Va.
Rummell-Dawley Mfg. Co., St. Louis, Mo.
- Steel Protector. (Concrete Curb Steps, etc.)**
[See Protector Steel.]
- Steel Sheet Piling.**
Jones & Laughlin Steel Co., Pittsburgh, Pa.
- Stencils.**
Baltimore Office Supply Co., Baltimore, Md.
- Stirrups. (Building.)**
Chesapeake Iron Works, Baltimore, Md.
- Stock Certificates, Bonds and Seals.**
Baltimore Office Supply Co., Baltimore, Md.
- Stokers. (Mechanical.)**
Babcock & Wilcox Co., New York, N. Y.
Harrisburg Fdry. & Mach. Wks., Harrisburg, Pa.
Westinghouse Machine Co., Pittsburgh, Pa.
- Storage Batteries.**
Eac. Storage Battery Co., The, Philadelphia, Pa.
Eac Electric Co., Baltimore, Md.
Westinghouse Machine Co., Pittsburgh, Pa.
- Strainers.**
Cameron Steam Pump Wks., A. S., New York, N. Y.
- Structural Steel and Iron.**
Amer. Bridge Co. of New York, New York, N. Y.
Belmont Iron Works, Philadelphia, Pa.
Carnegie Steel Co., Pittsburgh, Pa.
Champion Bridge Co., Wilmington, Ohio.
Chesapeake Iron Works, Baltimore, Md.
Cincinnati Iron & Steel Co., Cincinnati, O.
Des Moines Bridge & Iron Co., Pittsburgh, Pa.
Dietrich Bros., Baltimore, Md.
Hoffman & Co., R. C., Baltimore, Md.
Jones & Laughlin Steel Co., Pittsburgh, Pa.
Memphis Bridge Co., Memphis, Tenn.
- Phoenix Iron Co., Philadelphia, Pa.**
Republic Iron & Steel Co., Youngstown, O.
Roanoke Bridge Co., Roanoke, Va.
Roanoke Iron Works, Inc., Roanoke, Va.
Schreiber & Sons Co., The L., Cincinnati, O.
Snead Architectural Iron Works, Louisville, Ky.
Tennessee Coal, Iron & R. R. Co., Birmingham, Ala.
Virginia Bridge & Iron Co., Roanoke, Va.
York Bridge Co., York, Pa.
- Stump Pullers.**
Zimmerman Steel Co., M. R., Lone Tree, Ia.
- Sugar-Mill Machinery.**
Pratt Engineering & Mach. Co., Atlanta, Ga.
- Sulphur.**
Union Sulphur Co., New York, N. Y.
- Super-Heaters. (Steam.)**
Babcock & Wilcox Co., New York, N. Y.
Power Specialty Co., New York, N. Y.
- Surveying Instruments.**
Weber & Co., F., Philadelphia, Pa.
- Switchboards, Switches, etc.**
Engberg's Elect. & Mech. Wks., St. Joseph, Mich.
Fort Wayne Electric Works, Fort Wayne, Ind.
General Electric Co., Schenectady, N. Y.
Westinghouse Elect. & Mfg. Co., Pittsburgh, Pa.
- Switches. [See Railroad Frogs and Switches.]**
- Switchstands.**
American Valve & Meter Co., Cincinnati, O.
Weir Frog Co., Cincinnati, O.
- Tackle Blocks. (For Wire or Manila Rope.)**
Broderick & Bascom Rope Co., St. Louis, Mo.
Patterson Co., W. W., Pittsburgh, Pa.
- Talc and Soapstones. (Crayons, Pencils, Powder.)**
Georgia Talc Co., Asheville, N. C.
- Tanks. (Iron and Steel.)**
American Water Softener Co., Philadelphia, Pa.
Caldwell Co., Inc., W. E., Louisville, Ky.
Case Threshing Mch. Co., Inc., J. L., Racine, Wis.
Casey-Hedges Co., Chattanooga, Tenn.
Chattanooga Boiler & Tank Co., Chat'n'ga, Tenn.
Cole Mfg. Co., H. D., Newman, Ga.
Des Moines Bridge & Iron Co., Pittsburgh, Pa.
Gem City Boiler Co., Dayton, O.
Harry Bros. Co., Newport, Ky.
Hartley Boiler Works, Montgomery, Ala.
Keeler Co., E., Williamsport, Pa.
Lombard Iron Works, Augusta, Ga.
Lookout Boiler & Mfg. Co., Chattanooga, Tenn.
New Orleans Rfg. & Mch. Wks., New Orleans, La.
Oil City Boiler Co., Oil City, Pa.
Petroleum Iron Works Co., Sharon, Pa.
Rummell-Dawley Mfg. Co., St. Louis, Mo.
Scaffie & Sons Co., Wm. B., Pittsburgh, Pa.
Schnefeld's Sons Co., J. S., Macon, Ga.
Sydney Pump & Well Co., Richmond, Va.
Tennessee Metal Culvert Co., Nashville, Tenn.
Virginia Bridge & Iron Co., Roanoke, Va.
Walsh & Weldner Boiler Co., Chattanooga, Tenn.
- Tanks. (Wood.)**
Baltimore Cooperage Co., Baltimore, Md.
Caldwell Co., Inc., W. E., Louisville, Ky.
Davis & Son, G. M., Palatka, Fla.
Sydney Pump & Well Co., Richmond, Va.
- Tapes. (Measuring.)**
Lubin Rule Co., Saginaw, Mich.
Starrett Co., L. S., Athol, Mass.
- Telephones. (Supplies, Equipment.)**
Piedmont Electric Co., Asheville, N. C.
Western Electric Co., New York, N. Y.
- Telephone Cable.**
Western Electric Co., New York, N. Y.
- Telephone Poles. [See Crosssties.]**
Intern'l Cro. & Constr. Co., Galveston, Tex.
Western Electric Co., New York, N. Y.
- Terracotta.**
Atlanta Terra-Cotta Co., Atlanta, Ga.
Bibb Sewer Pipe Co., Macon, Ga.
Maryland Terra-Cotta Co., Baltimore, Md.
Pomona Terra-Cotta Co., Pomona, N. C.
Southern Building Material Co., Norfolk, Va.
Stevens' Sons Co., H., Macon, Ga.
- Threshers.**
Cardwell Machine Co., Richmond, Va.
Case Threshing Mch. Co., Inc., J. L., Racine, Wis.
- Ties. (Cresoted.)**
American Cresote Wks., New Orleans, La.
- Tie Plates. (Railways.)**
Virginia Railway Supply Co., Norfolk, Va.
- Tile. (Drain, Floor, etc.)**
Amer. Enam. Brick & Tile Co., New York, N. Y.
Bibb Sewer Pipe Co., Macon, Ga.
Occonee Brick & Tile Co., Milledgeville, Ga.
- Tile. (Mosaic.)**
Dagostin & Angelini Bros., Montgomery, Ala.
- Tile. (Roofing.)**
National Roofing Tile Co., Lima, O.
- Timbers. (Cresoted.)**
American Cresote Wks., New Orleans, La.
- Tin and Terne Plates.**
American Sheet & Tin Plate Co., Pittsburgh, Pa.
Merchant & Evans Co., Philadelphia, Pa.
- Tobacco Machinery.**
Buckeye Iron & Brass Works, Dayton, O.
Cardwell Machine Co., Richmond, Va.
- Tool Steels.**
Jeppson & Sons, Inc., Wm., St. Louis, Mo.
- Tools. (Machinists').**
Manning, Maxwell & Moore, Inc., New York, N. Y.
Morse Twist Drill & Mch. Co., New Bedford, Mass.
- Tools. (Mechanical.)**
Starrett Co., L. S., Athol, Mass.
- Tools. (Pneumatic.)**
Amer. Compressor & Pump Co., Baltimore, Md.
Chicago Pneumatic Tool Co., Chicago, Ill.
Independent Pneumatic Tool Co., Chicago, Ill.
Ingersoll-Rand Co., New York, N. Y.
- Torches.**
Wall Mfg. Supply Co., P., Allegheny, Pa.
- Towers. (Steel and Wood.)**
Baltimore Cooperage Co., Baltimore, Md.
Caldwell Co., Inc., W. E., Louisville, Ky.
Chattanooga Boiler & Tank Co., Chat'n'ga, Tenn.
Cole Mfg. Co., H. D., Newman, Ga.
Des Moines Bridge & Iron Co., Pittsburgh, Pa.
- Traction Engines.**
Case Threshing Mch. Co., Inc., J. L., Racine, Wis.
Intern'l Harvester Co. of America, Chicago, Ill.
Quincy Engine Co., Quincy, Pa.
- Tramway. (Overhead.)**
Northern Engineering Works, Detroit, Mich.
Speidel, J. G., Reading, Pa.
- Tramway. (Wire Rope.)**
Broderick & Bascom Rope Co., St. Louis, Mo.
Caldwell & Sons Co., H. W., Chicago, Ill.
Link-Belt Co., Nictown (Philadelphia), Pa.
- Transformers.**
Moloney Electric Co., St. Louis, Mo.
Triumph Electric Co., Cincinnati, O.
- Trench Excavator.**
Fairbanks Steam Shovel Co., Marion, O.
Monaghan Machine Co., Chicago, Ill.
- Trucks. (Motor.)**
International Motor Co., New York, N. Y.
Schacht Motor Car Co., Cincinnati, Ohio.
- Trucks. (Platform, Freight, Mill, Factory, etc.)**
Chase Fdry. & Mfg. Co., Columbus, O.
Howe Scale Co., New York, N. Y.
- Trucks. (Storage Battery Auto.)**
Westinghouse Machine Co., Pittsburgh, Pa.
- Trust Companies. [See Bankers and Brokers.]**
- Tube Well Strainers.**
Cook Well Co., St. Louis, Mo.
- Tubes. (Boiler.)**
Cincinnati Iron & Steel Co., Cincinnati, O.
National Tube Co., Pittsburgh, Pa.
- Tubeing.**
Field & Co., Inc., Philadelphia, Pa.
La Belle Iron Works, Steubenville, O.
National Tube Co., Pittsburgh, Pa.
Youngstown Sheet & Tube Co., Youngstown, O.
- Turbines. (Hydraulic.)**
Allis-Chalmers Co., Milwaukee, Wis.
Davis Foundry & Machine Works, Rome, Ga.
Lefell & Co., James, Springfield, O.
Poole Engineering & Mach. Co., Baltimore, Md.
Salem Foundry and Machine Works, Salem, Va.
Smith Co., S. Morgan, York, Pa.
- Turbines. (Steam.)**
Allis-Chalmers Co., Milwaukee, Wis.
De Laval Steam Turbine Co., Trenton, N. J.
Pt. Wayne Electric Works, Ft. Wayne, Ind.
General Electric Co., Schenectady, N. Y.
Southwest Fdry. & Mch. Co., Philadelphia, Pa.
Terry Steam Turbine Co., New York, N. Y.
Western Electric Co., New York, N. Y.
Westinghouse Machine Co., Pittsburgh, Pa.
- Turn Buckles.**
Broderick & Bascom Rope Co., St. Louis, Mo.
- Turntables.**
Virginia Bridge & Iron Co., Roanoke, Va.
- Tuyeres. (Copper and Bronze.)**
Keystone Bronze Co., Pittsburgh, Pa.
- Twine.**
American Manufacturing Co., New York, N. Y.
Columbian Rope Co., Auburn, N. Y.
International Cotton Mills Corp., New York, N. Y.
Plymouth Cordage Co., North Plymouth, Mass.
- Twine Machinery.**
Haskell-Dawes Machine Co., Boston, Mass.
- Twisting Machinery.**
Haskell-Dawes Machine Co., Boston, Mass.
- Unions.**
Dart Manufacturing Co., E. M., Providence, R. I.
- Valves.**
Bourbon Copper & Brass Wks. Co., Cincinnati, O.
Columbian Iron Works, Chattanooga, Tenn.
Frick Co., The, Waynesboro, Pa.
Glamorgan Pipe & Foundry Co., Lynchburg, Va.
Jenkins Bros., New York, N. Y.
Kennedy Valve Mfg. Co., Elmira, N. Y.
National Tube Co., Pittsburgh, Pa.
Powell Co., Wm., Cincinnati, O.
Pittsburgh Valve Fdry. & Const. Co., Pittsburgh, Pa.
Pratt & Cady Co., Hartford, Conn.
York Mfg. Co., York, Pa.
- Varnish.**
Berry Bros., Ltd., Detroit, Mich.
- Veneer Machines.**
Titus, E. E., Petersburg, Va.
- Ventilating Apparatus. (Engineers' and Contractors.)**
Buffalo Forge Co., Buffalo, N. Y.
Peck-Hammond Co., Cincinnati, O.
Sturtevant Co., B. F., Hyde Park, Mass.
- Ventilators.**
Merchant & Evans Co., Philadelphia, Pa.
Fullman Auto. Ventilator Mfg. Co., York, Pa.
- Wagons. (Dump.)**
Columbia Wagon Co., Columbia, Pa.
Eagle Wagon Works, Auburn, N. Y.
Troy Wagon Works Co., Troy, O.
Western Wheeled Scraper Co., Aurora, Ill.
- Wall Plaster.**
King & Co., J. B., New York, N. Y.
- Wall Plugs. (Galvanized.)**
Niagara Falls Metal Stamping Works, Niagara Falls, N. Y.
- Wall Ties.**
Niagara Falls Metal Stamping Works, Niagara Falls, N. Y.
- Page Woven Wire Fence Co., Adrian, Mich.**
- Washers. (Ore and Phosphate.)**
Bailey-Lebby Co., Charleston, S. C.
Cameron & Barkley Co., Charleston, S. C.
McLanahan-Stone Mach. Co., Hollidaysburg, Pa.
- Washers. (Water-Power for Clothes.)**
Bates & Bros. Co., D. L., Dayton, O.
- Washers and Rivets. [See Bolts, Nuts, Rivets, Studs and Washers.]**
- Water Filters. [See Filters, Water, for Domestic and Industrial Purposes.]**
- Water Meters.**
American Valve & Meter Co., Cincinnati, O.
- Waterproofing. (For Brick Work.)**
Barrett Mfg. Co., Philadelphia, Pa.
Ceresit Waterproofing Co., Chicago, Ill.
National Roofing Co., Tonawanda, N. Y.
- Waterproofing. (For Cement Mortar.)**
Ceresit Waterproofing Co., Chicago, Ill.
- Waterproofing. (For Concrete.)**
Barrett Mfg. Co., Philadelphia, Pa.
Ceresit Waterproofing Co., Chicago, Ill.
National Roofing Co., Tonawanda, N. Y.
- Waterproof Compound. (Liquid.)**
National Roofing Co., Tonawanda, N. Y.
- Water-Softening Apparatus. (Purifying.)**
American Water Softener Co., Philadelphia, Pa.
Gem City Boiler Co., Dayton, O.
N. Y. Cont. Jewell Filtr'n Co., New York, N. Y.
Roberts Filter Mfg. Co., Philadelphia, Pa.
Scaife & Sons Co., Wm. B., Pittsburgh, Pa.
Tucker & Laxton, Charlotte, N. C.
- Water Supply Systems. (Town, Home, Railroad, etc.)**
Rife Engine Co., New York, N. Y.
- Water-Wheels. [See Turbines. (Hydraulic).]**
- Water-Works Supplies and Appliances.**
American Cast Iron Pipe Co., Birmingham, Ala.
American Pipe & Constr. Co., Philadelphia, Pa.
Bibb Sewer Pipe Co., Macon, Ga.
Bourbon Copper & Brass Wks. Co., Cincinnati, O.
Coldwell-Wilcox Co., Newburgh, N. Y.
Columbian Iron Works, Chattanooga, Tenn.
Glamorgan Pipe & Foundry Co., Lynchburg, Va.
Kennedy Valve Mfg. Co., Elmira, N. Y.
Keystone Pump & Well Eng. Co., Beaver Falls, Pa.
Leadite Co., Inc., The, Philadelphia, Pa.
McWane Pipe Works, Lynchburg, Va.
Pomona Terra-Cotta Co., Pomona, N. C.
Salem Foundry and Machine Works, Salem, Va.
Stevens' Sons Co., H., Macon, Ga.
U. S. Cast Iron Pipe & Fdry. Co., New York, N. Y.
- Weather Strips.**
Fullman Auto. Ventilator Mfg. Co., York, Pa.
- Well Contractors. (Oil, Artesian, etc.)**
Cook Well Co., The, St. Louis, Mo.
Hughes Specialty Well Drill Co., Charleston, S. C.
Stothoff Bros., Flemington, N. J.
Sydney Pump & Well Co., Richmond, Va.
- Well Tools and Supplies.**
Cook Well Co., The, St. Louis, Mo.
Keystone Pump & Well Eng. Co., Beaver Falls, Pa.
Williams Bros., Ithaca, N. Y.
- Wheels and Axles.**
Oliver Mfg. Co., W. J., Knoxville, Tenn.
- Wheelbarrows and Trucks.**
Syracuse Chilled Plow Co., Syracuse, N. Y.
- Wheels. (Steel and Steel Tired.)**
Carnegie Steel Co., Pittsburgh, Pa.
- White Lead and Linseed Oil.**
Thompson & Co., Pittsburgh, Pa.
- Window Frames and Sashes. (Fireproof.)**
Detroit Steel Products Co., Detroit, Mich.
Voigtmann & Co., Chicago, Ill.
- Window Guards. (Wire.) [See Wire Goods.]**
- Windmills.**
Baltimore Cooperage Co., Baltimore, Md.
Caldwell Co., Inc., W. E., Louisville, Ky.
- Wire Insulating.**
General Electric Co., Schenectady, N. Y.
- Wire. (Barbed Wire, etc.)**
American Steel & Wire Co., Chicago, Ill.
Roebeling's Sons Co., J. A., Trenton, N. J.
Youngstown Sheet & Tube Co., Youngstown, O.
- Wire Cloth. (Iron, Steel, Brass, etc.)**
American Steel & Wire Co., Chicago, Ill.
Caldwell & Sons Co., The H. W., Chicago, Ill.
Meyers Mfg. Co., Fred J., Hamilton, O.
New Jersey Wire Cloth Co., Trenton, N. J.
- Wire Goods.**
Bolles Iron & Wire Works, J. W., Detroit, Mich.
Cincinnati Mfg. Co., Cincinnati, O.
Dow Wire and Iron Works, Louisville, Ky.
Dufur & Co., Baltimore, Md.
Dufur, Baggott & Co., Baltimore, Md.
Meyers Mfg. Co., The, Fred J., Hamilton, O.
New Jersey Wire Cloth Co., Trenton, N. J.
- Wire Netting.**
American Steel & Wire Co., Chicago, Ill.
New Jersey Wire Cloth Co., Trenton, N. J.
- Wire Rope.**
American Steel & Wire Co., Chicago, Ill.
Broderick & Bascom Rope Co., St. Louis, Mo.
Roebeling's Sons Co., J. A., Trenton, N. J.
Williamsport Wire Rope Co., Williamsport, Pa.
Youngstown Sheet & Tube Co., Youngstown, O.
- Wire Rope Clips.**
American Holst & Derrick Co., St. Paul, Minn.
Broderick & Bascom Rope Co., St. Louis, Mo.
- Wood Blocks. (For Paving and Factory Floors.)**
U. S. Wood Preserving Co., New York, N. Y.
- Woodboring Machines.**
Chicago Pneumatic Tool Co., Chicago, Ill.
Ingersoll-Rand Co., New York, N. Y.
- Wood Distillation.**
Pritchard, Thos. W., Wilmington, N. C.
- Wood-Fiber Plaster.**
King & Co., J. B., New York, N. Y.
- Wood Pipe. (For Water, etc.)**
Wyckoff & Son Co., A., Elmira, N. Y.
- Woodworking Machinery.**
Kline, Lewis T., Alpena, Mich.
Knight Manufacturing Co., Canton, O.
Lane Mfg. Co., Montpelier, Vt.
Ober Mfg. Co., Chagrin Falls, O.
Shiner & Sons, Samuel J., Milton, Pa.
Smith-Courtney Co., Richmond, Va.
Smith Machine Co., H. B., Smithville, N. J.
Wilmington Iron Works, Wilmington, N. C.
- Wrapping Paper.**
Berlin Mills Co., Portland, Me.
- Yarn. (Tarred Sinal.)**
American Manufacturing Co., New York, N. Y.
Columbian Rope Co., Auburn, N. Y.
Plymouth Cordage Co., North Plymouth, Mass.

Ads. marked * appear every other week.
Ads. marked † appear in first issue of
the month.
Ads. marked ‡ not in this issue.

Alphabetical Index of Advertisers.

Abraham & Root Mfg. Co.	9	Caroline Fdry Co.	49	Forcum & Co.	101	Kinnear Mfg. Co., The	68	North Carolina Metal Culvert	119	Southern States Port. Cem. Co.	1
Abrasive Material Co.	25	Carter, L. A.	30	Fort Wayne Electric Works	1	Kirkpatrick Sand & Cement	29	North Carolina Metal Culvert	119	Southern Supply Co.	11
Acme Knitting Machine & Sewing	53	Foster Motor Co.	152	Fort-Orleans-Gould Co.	27	Kirk Machine Shop	52	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
Acme Steel & Malleable Iron Works	49	Case Thresh. Mch. Co., J. I., Inc.	105	Foster Incandescent Lamp Wks.	9	Kittanning Clay Products Co.	43	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
Agos, G. Worthen	49	Casey-Hedges Co., The	9	Franklin Steel Co.	52	Kline, Lewis T.	120	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
Alabama Cons. Coal & Iron Co.	10	Central of Georgia Railway	148	Franklin, J. E.	104	Knight, B. J.	120	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
Albany Portland Cement Co.	10	Ceresit Waterproofing Co.	38	French Oil Mill Mch. Co.	35	Kosmos Portland Cement Co.	20	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
Albergo Pump & Condenser Co.	126	C. H. & E. Mfg. Co.	30	Frick Co.	15	La Belle Iron Works	35	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
Albro-Clem Elevator Co.	21	Champion Bridge Co.	39	Proshing & Robertson	26	Lader, Estate Edw. R.	105	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
Allen American Manganese Steel Co., Edg.	56	Chase Foundry & Mfg. Co.	50	Fulker-Gohn	26	Laidlaw-Dunn-Gordon Co.	116	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
Allen, Harkley & Co.	56	Chattanooga Boiler & Tank Co.	34	Galene-Signal Oil Co.	16	Lathrop & Co. O. F.	131	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
Ally-Chalmers Co.	58	Chattanooga Iron & Wire Wks.	40	Gallon Iron Works Co.	117	Lawrence James Co.	27	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
Almond Sales Co., J. F.	58	Chattanooga Roofing & Fdry.	47	Galloway, O. C.	102	Lee, H. J.	106	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
Alpha Portland Cement Co.	29	Chesapeake Belling Co.	10	Gardner Gov. Co.	116	Leete-Maupin Eng. Co.	26	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
Alsing Engineering & Const. Co.	29	Chesapeake Iron Works	38	Gardner & Howe	26	Leff & Co., J.	26	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
Amberg & Co.	33	Chesapeake Steamship Co.	57	Garland Nut & Rivet Co.	43	Leff & Co., J.	26	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
Amberg Hydraulic Construction Co.	33	Chicago Water Works Co.	103	General Electric Co.	1	Leff & Co., J.	26	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
Amberg Prospecting Co., H. R.	116	Chicago Pneumatic Tool Co.	116	Genl. Fire Extinguisher Co.	58	Leff & Co., J.	26	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
American Air Compressor Wks.	117	Chickamauga Cement Co.	58	Genl. Bangor Slate Co.	46	Leff & Co., J.	26	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
American Bridge Co. of New York	38	Church & Dwight Co.	129	Georgetown Water, Gas, Elec. & Power Co.	102	Leff & Co., J.	26	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
American Cast Iron Pipe Co.	124	Cincinnati Expansion Bolt & Eng. Co.	104	Georgia Car & Locomotive Co.	104	Leff & Co., J.	26	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
American Compressor & Pump Co.	117	Cincinnati Frog & Switch Co.	35	Georgia Talc Co.	86	Leff & Co., J.	26	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
American Cotton Oil Co.	54	Cincinnati Mfg. Co.	40	Gerlach Co., Peter	133	Leff & Co., J.	26	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
American Cresote Works	49	Cincinnati Sheet Metal & Ins. Co.	47	Gilbert & Sons Bangor Fdry. Co.	48	Leff & Co., J.	26	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
American Enamel Mfg. Co.	110	Cincinnati Steel & Iron Works	118	Gilbert & Sons Bangor Fdry. Co.	48	Leff & Co., J.	26	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
American Engine Co.	45	Cincinnati Steel & Iron Works	118	Gilbert & Sons Bangor Fdry. Co.	48	Leff & Co., J.	26	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
American Engineering Co.	110	Cincinnati Steel & Iron Works	118	Gilbert & Sons Bangor Fdry. Co.	48	Leff & Co., J.	26	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
American Frog & Switch Co.	106	Cincinnati Steel & Iron Works	118	Gilbert & Sons Bangor Fdry. Co.	48	Leff & Co., J.	26	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
American Hoist & Derrick Co.	111	Cincinnati Steel & Iron Works	118	Gilbert & Sons Bangor Fdry. Co.	48	Leff & Co., J.	26	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
American Portland Cement Co.	105	Cincinnati Steel & Iron Works	118	Gilbert & Sons Bangor Fdry. Co.	48	Leff & Co., J.	26	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
American Pump & Condenser Co.	126	Cincinnati Steel & Iron Works	118	Gilbert & Sons Bangor Fdry. Co.	48	Leff & Co., J.	26	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
American Railway Supply Co.	20	Cincinnati Steel & Iron Works	118	Gilbert & Sons Bangor Fdry. Co.	48	Leff & Co., J.	26	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
American Rolling Mill Co.	20	Cincinnati Steel & Iron Works	118	Gilbert & Sons Bangor Fdry. Co.	48	Leff & Co., J.	26	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
American Sheet & Tin Works	125	Cincinnati Steel & Iron Works	118	Gilbert & Sons Bangor Fdry. Co.	48	Leff & Co., J.	26	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
American Steel & Wire Works	125	Cincinnati Steel & Iron Works	118	Gilbert & Sons Bangor Fdry. Co.	48	Leff & Co., J.	26	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
American Steel & Wire Works	125	Cincinnati Steel & Iron Works	118	Gilbert & Sons Bangor Fdry. Co.	48	Leff & Co., J.	26	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
American Supply Co. of Providence, R. I.	53	Cincinnati Steel & Iron Works	118	Gilbert & Sons Bangor Fdry. Co.	48	Leff & Co., J.	26	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
American Valve & Fitting Co.	121	Cincinnati Steel & Iron Works	118	Gilbert & Sons Bangor Fdry. Co.	48	Leff & Co., J.	26	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
American Valve & Fitting Co.	121	Cincinnati Steel & Iron Works	118	Gilbert & Sons Bangor Fdry. Co.	48	Leff & Co., J.	26	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
Angle, Geo. W.	15	Cincinnati Steel & Iron Works	118	Gilbert & Sons Bangor Fdry. Co.	48	Leff & Co., J.	26	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
Arnold, Geo. W.	15	Cincinnati Steel & Iron Works	118	Gilbert & Sons Bangor Fdry. Co.	48	Leff & Co., J.	26	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
Arnold, Geo. W.	15	Cincinnati Steel & Iron Works	118	Gilbert & Sons Bangor Fdry. Co.	48	Leff & Co., J.	26	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
Arnold, Geo. W.	15	Cincinnati Steel & Iron Works	118	Gilbert & Sons Bangor Fdry. Co.	48	Leff & Co., J.	26	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
Arnold, Geo. W.	15	Cincinnati Steel & Iron Works	118	Gilbert & Sons Bangor Fdry. Co.	48	Leff & Co., J.	26	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
Arnold, Geo. W.	15	Cincinnati Steel & Iron Works	118	Gilbert & Sons Bangor Fdry. Co.	48	Leff & Co., J.	26	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
Arnold, Geo. W.	15	Cincinnati Steel & Iron Works	118	Gilbert & Sons Bangor Fdry. Co.	48	Leff & Co., J.	26	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
Arnold, Geo. W.	15	Cincinnati Steel & Iron Works	118	Gilbert & Sons Bangor Fdry. Co.	48	Leff & Co., J.	26	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
Arnold, Geo. W.	15	Cincinnati Steel & Iron Works	118	Gilbert & Sons Bangor Fdry. Co.	48	Leff & Co., J.	26	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
Arnold, Geo. W.	15	Cincinnati Steel & Iron Works	118	Gilbert & Sons Bangor Fdry. Co.	48	Leff & Co., J.	26	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
Arnold, Geo. W.	15	Cincinnati Steel & Iron Works	118	Gilbert & Sons Bangor Fdry. Co.	48	Leff & Co., J.	26	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
Arnold, Geo. W.	15	Cincinnati Steel & Iron Works	118	Gilbert & Sons Bangor Fdry. Co.	48	Leff & Co., J.	26	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
Arnold, Geo. W.	15	Cincinnati Steel & Iron Works	118	Gilbert & Sons Bangor Fdry. Co.	48	Leff & Co., J.	26	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
Arnold, Geo. W.	15	Cincinnati Steel & Iron Works	118	Gilbert & Sons Bangor Fdry. Co.	48	Leff & Co., J.	26	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
Arnold, Geo. W.	15	Cincinnati Steel & Iron Works	118	Gilbert & Sons Bangor Fdry. Co.	48	Leff & Co., J.	26	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
Arnold, Geo. W.	15	Cincinnati Steel & Iron Works	118	Gilbert & Sons Bangor Fdry. Co.	48	Leff & Co., J.	26	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
Arnold, Geo. W.	15	Cincinnati Steel & Iron Works	118	Gilbert & Sons Bangor Fdry. Co.	48	Leff & Co., J.	26	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
Arnold, Geo. W.	15	Cincinnati Steel & Iron Works	118	Gilbert & Sons Bangor Fdry. Co.	48	Leff & Co., J.	26	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
Arnold, Geo. W.	15	Cincinnati Steel & Iron Works	118	Gilbert & Sons Bangor Fdry. Co.	48	Leff & Co., J.	26	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
Arnold, Geo. W.	15	Cincinnati Steel & Iron Works	118	Gilbert & Sons Bangor Fdry. Co.	48	Leff & Co., J.	26	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
Arnold, Geo. W.	15	Cincinnati Steel & Iron Works	118	Gilbert & Sons Bangor Fdry. Co.	48	Leff & Co., J.	26	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
Arnold, Geo. W.	15	Cincinnati Steel & Iron Works	118	Gilbert & Sons Bangor Fdry. Co.	48	Leff & Co., J.	26	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
Arnold, Geo. W.	15	Cincinnati Steel & Iron Works	118	Gilbert & Sons Bangor Fdry. Co.	48	Leff & Co., J.	26	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
Arnold, Geo. W.	15	Cincinnati Steel & Iron Works	118	Gilbert & Sons Bangor Fdry. Co.	48	Leff & Co., J.	26	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
Arnold, Geo. W.	15	Cincinnati Steel & Iron Works	118	Gilbert & Sons Bangor Fdry. Co.	48	Leff & Co., J.	26	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
Arnold, Geo. W.	15	Cincinnati Steel & Iron Works	118	Gilbert & Sons Bangor Fdry. Co.	48	Leff & Co., J.	26	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
Arnold, Geo. W.	15	Cincinnati Steel & Iron Works	118	Gilbert & Sons Bangor Fdry. Co.	48	Leff & Co., J.	26	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
Arnold, Geo. W.	15	Cincinnati Steel & Iron Works	118	Gilbert & Sons Bangor Fdry. Co.	48	Leff & Co., J.	26	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
Arnold, Geo. W.	15	Cincinnati Steel & Iron Works	118	Gilbert & Sons Bangor Fdry. Co.	48	Leff & Co., J.	26	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
Arnold, Geo. W.	15	Cincinnati Steel & Iron Works	118	Gilbert & Sons Bangor Fdry. Co.	48	Leff & Co., J.	26	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
Arnold, Geo. W.	15	Cincinnati Steel & Iron Works	118	Gilbert & Sons Bangor Fdry. Co.	48	Leff & Co., J.	26	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
Arnold, Geo. W.	15	Cincinnati Steel & Iron Works	118	Gilbert & Sons Bangor Fdry. Co.	48	Leff & Co., J.	26	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
Arnold, Geo. W.	15	Cincinnati Steel & Iron Works	118	Gilbert & Sons Bangor Fdry. Co.	48	Leff & Co., J.	26	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
Arnold, Geo. W.	15	Cincinnati Steel & Iron Works	118	Gilbert & Sons Bangor Fdry. Co.	48	Leff & Co., J.	26	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
Arnold, Geo. W.	15	Cincinnati Steel & Iron Works	118	Gilbert & Sons Bangor Fdry. Co.	48	Leff & Co., J.	26	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
Arnold, Geo. W.	15	Cincinnati Steel & Iron Works	118	Gilbert & Sons Bangor Fdry. Co.	48	Leff & Co., J.	26	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
Arnold, Geo. W.	15	Cincinnati Steel & Iron Works	118	Gilbert & Sons Bangor Fdry. Co.	48	Leff & Co., J.	26	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
Arnold, Geo. W.	15	Cincinnati Steel & Iron Works	118	Gilbert & Sons Bangor Fdry. Co.	48	Leff & Co., J.	26	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
Arnold, Geo. W.	15	Cincinnati Steel & Iron Works	118	Gilbert & Sons Bangor Fdry. Co.	48	Leff & Co., J.	26	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
Arnold, Geo. W.	15	Cincinnati Steel & Iron Works	118	Gilbert & Sons Bangor Fdry. Co.	48	Leff & Co., J.	26	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
Arnold, Geo. W.	15	Cincinnati Steel & Iron Works	118	Gilbert & Sons Bangor Fdry. Co.	48	Leff & Co., J.	26	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
Arnold, Geo. W.	15	Cincinnati Steel & Iron Works	118	Gilbert & Sons Bangor Fdry. Co.	48	Leff & Co., J.	26	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
Arnold, Geo. W.	15	Cincinnati Steel & Iron Works	118	Gilbert & Sons Bangor Fdry. Co.	48	Leff & Co., J.	26	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
Arnold, Geo. W.	15	Cincinnati Steel & Iron Works	118	Gilbert & Sons Bangor Fdry. Co.	48	Leff & Co., J.	26	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
Arnold, Geo. W.	15	Cincinnati Steel & Iron Works	118	Gilbert & Sons Bangor Fdry. Co.	48	Leff & Co., J.	26	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
Arnold, Geo. W.	15	Cincinnati Steel & Iron Works	118	Gilbert & Sons Bangor Fdry. Co.	48	Leff & Co., J.	26	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
Arnold, Geo. W.	15	Cincinnati Steel & Iron Works	118	Gilbert & Sons Bangor Fdry. Co.	48	Leff & Co., J.	26	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
Arnold, Geo. W.	15	Cincinnati Steel & Iron Works	118	Gilbert & Sons Bangor Fdry. Co.	48	Leff & Co., J.	26	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
Arnold, Geo. W.	15	Cincinnati Steel & Iron Works	118	Gilbert & Sons Bangor Fdry. Co.	48	Leff & Co., J.	26	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
Arnold, Geo. W.	15	Cincinnati Steel & Iron Works	118	Gilbert & Sons Bangor Fdry. Co.	48	Leff & Co., J.	26	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
Arnold, Geo. W.	15	Cincinnati Steel & Iron Works	118	Gilbert & Sons Bangor Fdry. Co.	48	Leff & Co., J.	26	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
Arnold, Geo. W.	15	Cincinnati Steel & Iron Works	118	Gilbert & Sons Bangor Fdry. Co.	48	Leff & Co., J.	26	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
Arnold, Geo. W.	15	Cincinnati Steel & Iron Works	118	Gilbert & Sons Bangor Fdry. Co.	48	Leff & Co., J.	26	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
Arnold, Geo. W.	15	Cincinnati Steel & Iron Works	118	Gilbert & Sons Bangor Fdry. Co.	48	Leff & Co., J.	26	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
Arnold, Geo. W.	15	Cincinnati Steel & Iron Works	118	Gilbert & Sons Bangor Fdry. Co.	48	Leff & Co., J.	26	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
Arnold, Geo. W.	15	Cincinnati Steel & Iron Works	118	Gilbert & Sons Bangor Fdry. Co.	48	Leff & Co., J.	26	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
Arnold, Geo. W.	15	Cincinnati Steel & Iron Works	118	Gilbert & Sons Bangor Fdry. Co.	48	Leff & Co., J.	26	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
Arnold, Geo. W.	15	Cincinnati Steel & Iron Works	118	Gilbert & Sons Bangor Fdry. Co.	48	Leff & Co., J.	26	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
Arnold, Geo. W.	15	Cincinnati Steel & Iron Works	118	Gilbert & Sons Bangor Fdry. Co.	48	Leff & Co., J.	26	North Carolina Metal Culvert	119	Southern Wire & Iron Mfg. Co.	11
Arnold, Geo. W.	15	Cincinnati Steel & Iron Works	118	Gilbert & Sons Bangor Fdry. Co.	48	Leff & Co.,					



The
Brough

Hard
Ceme
Paint

W. D.
96
SYRAC
GR
We m
The Hall

INT

"WO
"MT
"ON
"ARI
"STA
"FEB

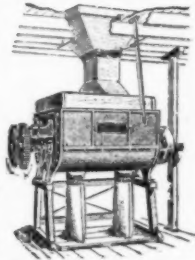
Ain

BO

14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
77
78
79
80
81
82
83
84
85
86
87
88
89
90
91
92
93
94
95
96
97
98
99
100
101
102
103
104
105
106
107
108
109
110
111
112
113
114
115
116
117
118
119
120
121
122
123
124
125
126
127
128
129
130
131
132
133
134
135
136
137
138
139
140
141
142
143
144
145
146
147
148
149
150
151
152
153
154
155
156
157
158
159
160
161
162
163
164
165
166
167
168
169
170
171
172
173
174
175
176
177
178
179
180
181
182
183
184
185
186
187
188
189
190
191
192
193
194
195
196
197
198
199
200
201
202
203
204
205
206
207
208
209
210
211
212
213
214
215
216
217
218
219
220
221
222
223
224
225
226
227
228
229
230
231
232
233
234
235
236
237
238
239
240
241
242
243
244
245
246
247
248
249
250
251
252
253
254
255
256
257
258
259
260
261
262
263
264
265
266
267
268
269
270
271
272
273
274
275
276
277
278
279
280
281
282
283
284
285
286
287
288
289
290
291
292
293
294
295
296
297
298
299
300
301
302
303
304
305
306
307
308
309
310
311
312
313
314
315
316
317
318
319
320
321
322
323
324
325
326
327
328
329
330
331
332
333
334
335
336
337
338
339
340
341
342
343
344
345
346
347
348
349
350
351
352
353
354
355
356
357
358
359
360
361
362
363
364
365
366
367
368
369
370
371
372
373
374
375
376
377
378
379
380
381
382
383
384
385
386
387
388
389
390
391
392
393
394
395
396
397
398
399
400
401
402
403
404
405
406
407
408
409
410
411
412
413
414
415
416
417
418
419
420
421
422
423
424
425
426
427
428
429
430
431
432
433
434
435
436
437
438
439
440
441
442
443
444
445
446
447
448
449
450
451
452
453
454
455
456
457
458
459
460
461
462
463
464
465
466
467
468
469
470
471
472
473
474
475
476
477
478
479
480
481
482
483
484
485
486
487
488
489
490
491
492
493
494
495
496
497
498
499
500
501
502
503
504
505
506
507
508
509
510
511
512
513
514
515
516
517
518
519
520
521
522
523
524
525
526
527
528
529
530
531
532
533
534
535
536
537
538
539
540
541
542
543
544
545
546
547
548
549
550
551
552
553
554
555
556
557
558
559
560
561
562
563
564
565
566
567
568
569
570
571
572
573
574
575
576
577
578
579
580
581
582
583
584
585
586
587
588
589
590
591
592
593
594
595
596
597
598
599
600
601
602
603
604
605
606
607
608
609
610
611
612
613
614
615
616
617
618
619
620
621
622
623
624
625
626
627
628
629
630
631
632
633
634
635
636
637
638
639
640
641
642
643
644
645
646
647
648
649
650
651
652
653
654
655
656
657
658
659
660
661
662
663
664
665
666
667
668
669
670
671
672
673
674
675
676
677
678
679
680
681
682
683
684
685
686
687
688
689
690
691
692
693
694
695
696
697
698
699
700
701
702
703
704
705
706
707
708
709
710
711
712
713
714
715
716
717
718
719
720
721
722
723
724
725
726
727
728
729
730
731
732
733
734
735
736
737
738
739
740
741
742
743
744
745
746
747
748
749
750
751
752
753
754
755
756
757
758
759
760
761
762
763
764
765
766
767
768
769
770
771
772
773
774
775
776
777
778
779
780
781
782
783
784
785
786
787
788
789
790
791
792
793
794
795
796
797
798
799
800
801
802
803
804
805
806
807
808
809
810
811
812
813
814
815
816
817
818
819
820
821
822
823
824
825
826
827
828
829
830
831
832
833
834
835
836
837
838
839
840
841
842
843
844
845
846
847
848
849
850
851
852
853
854
855
856
857
858
859
860
861
862
863
864
865
866
867
868
869
870
871
872
873
874
875
876
877
878
879
880
881
882
883
884
885
886
887
888
889
890
891
892
893
894
895
896
897
898
899
900
901
902
903
904
905
906
907
908
909
910
911
912
913
914
915
916
917
918
919
920
921
922
923
924
925
926
927
928
929
930
931
932
933
934
935
936
937
938
939
940
941
942
943
944
945
946
947
948
949
950
951
952
953
954
955
956
957
958
959
960
961
962
963
964
965
966
967
968
969
970
971
972
973
974
975
976
977
978
979
980
981
982
983
984
985
986
987
988
989
990
991
992
993
994
995
996
997
998
999
1000

The Broughton
DRY MIXER
FOR
Hard Plaster
Cement
Paint, etc.

W. D. DUNNING
96 W. Water St.
SYRACUSE, N. Y.



**YOU CAN STOP
THIS PRESS**



wherever you want to at
any point of its upward
or downward movement.

It is wonderfully effi-
cient in baling goods, or
when used where great
pressure is needed.

Always Under Control
Send for Illustrated
catalogue.

BOOMER & BOSCHERT PRESS CO.
386 W. Water St. SYRACUSE, N. Y.

GRINDSTONES

We manufacture unmounted grindstones
in all sizes.

The Hall Grindstone Co. Constitution, O.

Wm. F. Bockmiller, Pres. John G. Hullett, Sec.
Baltimore Office Supply Co.
106 S. Eutaw St., Baltimore, Md.
MANUFACTURERS OF
Stamps, Stencils, Seals, Metal Signs, etc.
Office and Bank Supplies.
Write for Prices.

INTERNATIONAL COTTON MILLS CORPORATION

Nos. 86-88 Worth St., New York, N. Y.

Manufacturers of

STANDARD COTTON GOODS AND SPECIALTIES

"WOODBERRY"	"DRUID"	"SELKIRK"	"ELKWOOD"
"MT. VERNON"	"HARTFORD"	"TALLASSEE"	"AVONDALE"
"ONTARIO"	"GREENWOODS"	"YARMOUTH"	"POLHEMUS"
"ARETAS"	"MONTANA"	"IMPERIAL"	"SAVOY"
"STARK"	"RAVENS"	"CHAMPION"	"LAUREL"
"PERFECTION"	"BEAR"	"CARIBOO"	"CONTINENTAL"

SAIL, WIDE AND ARMY DUCK

HOSE AND BELTING DUCK, SINGLE AND DOUBLE FILLING DUCK

Also Sheetings, Drills, Twills, Crashes, Osnaburgs, Grain-
bags, Bunting, Yarn, Wick, Rope, Twine
FOR DOMESTIC AND EXPORT TRADE

J. SPENCER TURNER CO.

SELLING HOUSE

86-88 Worth St., New York, N. Y.

BOSTON CHICAGO ST. LOUIS SAN FRANCISCO
BALTIMORE NEW ORLEANS LONDON

THE EMERSON

Baltimore's Newest and Most Complete Hotel
The Rendezvous of Southerners Visiting Baltimore



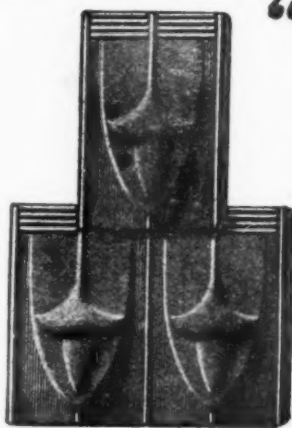
400 rooms, single or in suites, with and without bath. Each room
equipped with circulating ice water, as well as running hot and cold water,
regardless of bath.

Ideally situated in the center of the city, within walking distance of
its principal institutions.

Cars connecting with all railroad and steamship terminals arrive at
and depart from the hotel.

\$1.50 a Day Up

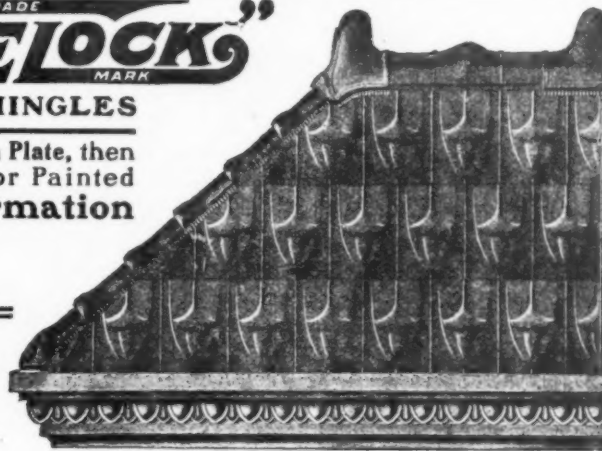
European Plan



TRADE MARK
"TITELOCK"
METAL SHINGLES

Made from Tin Plate, then
Galvanized or Painted
After Formation

THE "TITELOCK"
Shingle Laid in Place.
The VITAL Point
is the Lock



Style A. With Ridge and Hip Finish.

**FIRE, WATER and
LIGHTNING PROOF**

Milwaukee Corrugating Co.

MILWAUKEE
KANSAS CITY



Style B. With Ridge and Hip Finish.

"Invisible Joint" STEEL
CEILINGS

"Invisible Joint"
TRADE MARK



STEEL CEILINGS

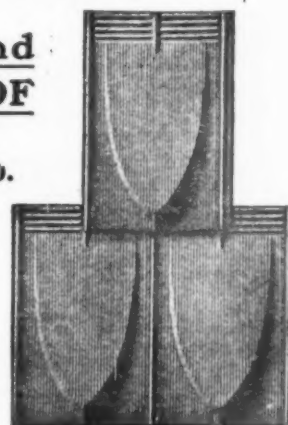


ARTISTIC



DURABLE

Send for our
New Catalogue



Send for Samples
and Catalogue

Milwaukee Artistic Metal Ceiling Co.
MILWAUKEE, WIS. KANSAS CITY, MO

Black Diamond File Works

Established 1863

Incorporated 1895

Twelve Medals
Awarded
at International
Expositions.

Special Prize
Gold Medal
Atlanta,
1895.



Our goods are on sale
in every leading hard-
ware store in the
United States and
Canada. Copy of Cata-
logue will be sent free
to any interested file
user on application.

G. & H. BARNETT CO., Philadelphia, Pa.

Owned and Operated by NICHOLSON FILE CO.

**DELTA FILE WORKS,****PHILADELPHIA, PA.**

The highest grade file made.
The file you will eventually use.

SELLERS INJECTORS

— FOR —

Locomotive

AND

Stationary Boilers

Interchangeable with other forms

1600 Hamilton Street

Philadelphia, Pa.

WM. SELLERS & CO., INCORPORATED**How About Your Pump Valves?**

The pump valve that is excellently suited for cold water service may not answer the purpose at all if used for hot, muddy or gritty water.

Naturally if you use a pump valve without first making sure that it is especially made for the kind of service you want it for—you will have dissatisfaction.

JENKINS BROS. PUMP VALVES

are made for all pumping requirements. Hence you can safely specify Jenkins Bros. Valves and *know* that you will secure the kind that will end your pump troubles.

If in doubt at any time as to the proper compound to specify, *write for one of our Schedule Cards*, which gives service for which each compound is guaranteed.

Jenkins Bros., New York Boston Philadelphia Chicago**SAVE THE COST**

of frequent repainting by using

DIXON'S SILICA-GRAPHITE PAINT

For protection of metal surfaces.

Write our Paint Department for long service records.

JOSEPH DIXON CRUCIBLE CO.**JERSEY CITY, N. J.****CARY SPRING WORKS**

240 and 249 West 29th St., New York, U. S. A.

Telephones, 3524-3525 Chelsea



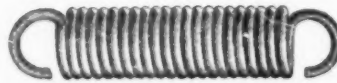
Manufacturers of
All kinds of
Round and
Flat Wire
Tempered and
Untempered



SPRINGS
for
MACHINERY
ROLLING
SHUTTERS
MOTORS, Etc.
Write for Book-
let and please
mention this
paper.



Flat Spiral and
Fine Springs
Our Specialty



Wire Springs of
Every
Description

JOHN H. JONES, Pres.

THOS. P. JONES, Vice-Pres.

DAVID G. JONES, Sec.-Treas.-Gen. Mgr.

PITTSBURG-BUFFALO COMPANY*"The Jones Interests," Founded 1876*

FRICK BUILDING, . . . PITTSBURG, PA.

SCOPE**ORGANIZATION****CAPACITY**

The Pittsburg-Buffalo Company is a big, substantial and aggressive coal mining and selling organization.

Back of this company is an executive and operative experience and ability of two generations of the Jones family who have brought their properties up to the highest state of scientific development to meet the modern requirements of steam, gas, smelting, coking and domestic coal users.

The Pittsburg-Buffalo Company's mines are located in:

Pittsburg District of Pennsylvania.	Kanawha District of West Virginia.
Freeport District of Pennsylvania.	Brilliant District of Ohio.
Mannington District of West Virginia.	Straight Creek District of Kentucky.
Black Mountain District of Virginia.	

These mines have an aggregate daily capacity of 30,000 tons. They are so located that the company's customers can avail themselves of the best freight rates obtainable and at the same time secure the highest grades of coal produced in each of these famous coal mining districts.

Annual Capacity, 6,000,000 Tons**PITTSBURG-BUFFALO COMPANY'S SALES OFFICES:**

Cleveland

Cincinnati

Philadelphia

Buffalo

Youngstown

Detroit

Chicago

s?
ever
ially
ss
can
you
e
e o
h
e
ago

B
N. J.
S

gs of
on

1